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**EVALUATION TECHNIQUE DESIGNED TO INVESTIGATE THE
EFFICACY OF A GROUP COMMUNICATION-BASED AURAL
REHABILITATION PROGRAM FOR HEARING-IMPAIRED ADULTS**

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"Adults constitute the majority of hearing impaired individuals in the United States. Most hearing-impaired adults gradually loss their hearing as a result of illness, accidents, noise exposure or the aging process. The effect of hearing loss varies greatly with these individuals depending on factors such as onset of loss, time of loss, and circumstances relating to loss" (Schow and Nerbonne,1989). Some individuals seem to acquire adequate communication compensation strategies. Others compensate by withdrawing from activities that involve communicating in difficult listening conditions. Aural rehabilitation efforts designed to address the compensatory strategies employed by hearing-impaired individuals is a focus of this paper.

"The purpose of an aural rehabilitation program for adults is to assist them in the realization of their optimal potential in communication in any setting (personal, vocational, and social)" (Alpiner and McCarthy, 1987). Traditionally aural rehabilitation programs focused on speechreading drills. "The goal of the classic analytical or synthetic speechreading methodologies of the early 1900's (Bruhn,1927; Bunker, 1924; and Nitchie, 1913) was to improve communication functioning by focusing on visible movements of the lips, tongue, and jaw (Kirby and Rogan, 1981). Later research (Binnie, 1976; Erber 1975) shifted the focus of aural rehabilitation on audition. Hearing aids and other amplifications devices became integral components of rehabilitation classes (Kirby and Rogan, 1981). Although auditory and visual training are essential, aural rehabilitation should include more than speechreading and auditory drills. The clients' needs and expectations should be addressed. Improving communication at the conversational level by addressing each individual clients' compensatory

strategies is the optimal goal; therefore communication-based therapy should be incorporated in aural rehabilitation programs.

Erber addresses communication-based therapy in his book "Communication Therapy for hearing impaired adults" (1988). For communication to be successful conversation must be successful. In his book, Erber looks at what makes conversation satisfying. "'Satisfaction' is a measure of the feelings and attitudes of each communicator toward the way in which the conversation has progressed, considering his/her own personal (perhaps unconscious) reasons for communicating" (Erber, 1988). Table 1-1 list personal sources of "satisfaction" in conversation. (Erber, 1988). Almost all normal hearing adults with good communication skills experience a wide range of satisfaction when participating in fluent conversations. Numerous emotions are seen in their conversations as a result of the conversations being fluent; therefore "fluency enables one to conduct a wide variety of conversations (Erber, 1988). Clinical observation suggest that hearing-impaired adults with limited compensatory skills (poor lipreading, inadequate conversation repair strategies) usually participate in non-fluent conversations (Erber, 1988). These individuals tend to judge their conversations as being unsatisfying. Hearing-impaired adults with good compensatory strategies tend to participate in more fluent and satisfying conversations. "Fluency provides an opportunity for satisfaction in conversations, but does not guarantee it" (Erber, 1988). If fluency is maintained by the use of compensatory strategies then hearing-impaired adults have an opportunity to participate in more satisfying conversations. Satisfaction must always stand as an independent variable because clinicians cannot judge the emotional state of their clients, and the clients emotional state could very easily interfere with conversational satisfaction. Clinicians should focus on improving

fluency which in turn may very well improve satisfaction. The use of communication repair strategies is essential in improving fluency since most hearing-impaired individuals experience breakdowns in their conversations. Table 1-2 lists some potential sources of difficulty in face-to-face conversation (Erber, 1988). These difficulties often lead to breakdowns in conversation thus a non-fluent conversation.

Research suggests that normal hearing individuals often react negatively and feel uncomfortable around communicatively-impaired individuals (Gagné, Stelmachovich, and Yovetich, 1991). Studies on the "hearing aid effect" have shown that normal hearing individuals do not react favorably to individuals wearing hearing aids (Blood, Danhauer, 1977). In a recent study by Gagné, Stelmachovich, and Yovetich, (1991) subjects reactions to: (a) the type of requests for clarification used by hearing-impaired individuals (normal hearing actors were used), and (b) the proportion of communication breakdowns that occurred during a short conversation were examined (Gagné, Stelmachovich, and Yovetich, 1991). In general they found that the subjects reacted more favorably to the actors when specific rather than non-specific strategies were used, and when the conversations contained the least amount of breakdowns. Two six point differential scales were developed for the study. One looked at aspects of the hearing-impaired actor's personality. Items were taken from scales developed for the "hearing aid effect" study. The second scale looked at the subjects' own emotional reactions to the hearing-impaired actor (Gagné, Stelmachovich, and Yovetich, 1991). Both scales were used in the present study.

The purpose of this study was to evaluate the success of an eight week group communication-based therapy program for hearing-impaired adults.

Appendix 1 provides a general description of the program. The success of the program was judged by comparing pre- and post- test measures of conversational competence. The clients overall understanding of conversations, repair strategy use, and appropriateness of conversational skills (taken from Table 1-1) were assessed by judges. Also assessed were reactions of the judges to the clients' personalities, and the judges' personal feelings. A modification of Erbers TOPICON was used as the pre/post assessment tool.

METHOD

Judges

Nine second year graduate students in audiology and deaf education, ranging in age from 23 to 40 with a mean age of 25, participated in the study. All the judges had normal hearing. Their participation was voluntary and they received no payment for their participation. All judges had completed a graduate level course in Aural Rehabilitation. Erbers communication approach to rehabilitation was addressed in the class, and they were all familiar with TOPICON.

Clients

Client 1 was an 84 year old male with a mixed moderately severe to profound hearing loss. He was binaurally aided with behind-the-ear hearing aids. Pre test results from the Denver Scale of Communication Function (Alpiner and McCarthy, 1987) showed that he perceived himself as having difficulties in all four categories- family, self, social-vocational, and communication. See appendix 8.

Client 2 was a 68 year female with a moderately severe to severe sensorineural hearing loss. She was binaurally aided with behind-the-ear hearing aids. Pre test

results from the Quantified Denver Scale which were transformed to standard showed that she perceived herself as having difficulties mainly in the social-vocational category. See appendix 8.

Client 3 was a 58 year male with a mixed sloping mild to severe hearing loss. He was binaurally aided with in-the-ear hearing aids. Pre test results from the Denver Scale of Communication Function showed that he perceived himself as having only minimal difficulties in the family and social-vocational categories. See appendix 8.

Procedures

Videotapes of the three hearing-impaired adult clients before and after communication-based therapy were viewed by all nine judges. Each client was viewed during four 5 minute conversations with the student clinician: these included audition plus vision, topic familiar to client, pre and post test, and audition alone, topic unfamiliar to client, pre and post test. (table 1-3). Noise was introduced (cafeteria noise) in all conditions for clients 2 and 3, to more realistically approximate a likely everyday listening situation and to fully tax the clients ability to use compensatory strategies in difficult listening situations. No noise was used with client 1 because of his inability to understand speech when background noise was present. TOPICON was chosen to stimulate the conversations (See appendix 2). "TOPICON is a simple conversation-sampling, evaluation, and practice procedure developed for clinical use in which conversations are elicited on a wide range of topics." (Erber, 1988). Client and clinician chose from a list a number of topics in which they have interest and about which they are knowledgeable and a number of topics which they do not

which they are not knowledgeable. Then conversations are conducted on these topics. At the conclusion of the conversations client and clinician discuss the following: "(a) What are the advantages/disadvantages of discussing a familiar/unfamiliar topic? (b) What happens when neither person knows very much about the topic? (c) Who talked more during the conversation? (d) Who asked more questions/gave more answers? Why? (e) What was the general direction of "information flow"? (f) Which factors resulted in fluency/disruption during the conversation? (g) Which clarification strategies were applied (in)effectively? (Erber, 1988). In the present study these factors were not discussed between client and clinician, but rather viewed by the judges to assess the success of the rehabilitation program. The conversations took place in a simulated home-like environment. Both clinician and client sat at a kitchen table in comfortable chairs. The client and clinician were facing one another and were about four feet apart. Each client chose from a list six topics which were familiar and interesting and six topics which were unfamiliar and uninteresting. The clinician then chose five topics to discuss- four familiar topics and three unfamiliar topics. First the clinician and client had one practice conversations with a familiar topic. Then the other four topics were discussed in five minute conversations. When the topic was familiar auditory plus visual cues were provided. When the topic was unfamiliar only auditory cues were provided. A cardboard barrier was placed between the clinician and client for this condition. These conditions were chosen because they were anticipated to be the most contrasting conditions. Appendix 3 provides a transcription of all conversations with client 3. The videotapes were randomized so that each client was viewed first, second, and third by the observers. See table 1-4 for randomization schedule. The order of pre and post tests was also randomized for viewing. The observers completed a questionnaire and two rating scales following the viewing

of the videotapes.

Questionnaire. The questionnaire was developed to probe viewers' opinions regarding the overall efficiency of the observed conversations. Questions addressed the extent to which the hearing-impaired person appeared to understand. An overall view of each conversation was assessed by judging the percent understanding and the percent bluffing by the clients during the conversations. Yes/no questions addressing repair strategy use, appropriate topic shifts, appropriate share of conversation time, smooth turntaking, and appropriate turn relinquishing were answered by all the observers. The questions were developed by taking into account personal sources of "satisfaction" in conversations. (Table 1-1)

Rating scales. Two 6-point differential rating scales were completed by the observers. The first scale investigated how the client would have made the observer feel if the observer had participated in the conversation. The second scale investigated the observers' perception of the clients' personality. (Gagné, Stelmachovich, and Yovetich, 1991). See appendix 4 for the questionnaire and the rating scales.

Results

The results of the questionnaire and the rating scales were analyzed separately.

Questionnaire results. Judges' average ratings of percent of time clients appeared to understand the conversations and percent of time clients appeared to be bluffing in the conversations is shown in tables 1-5-1-8. The judges viewed the

clients in all conditions as remaining the same or increasing their percent understanding of the conversations and remaining the same or decreasing their percent bluffing during the conversations in the post tests. These results are as expected for clients 1-3 respectively. When a client knows the topic and has both auditory and visual cues he/she is able to understand more of the conversation and bluff less. When the topic is unfamiliar and the client only has auditory cues he/she tends to bluff more and understand less. The auditory plus vision condition showed the greater percent understanding and the least amount bluffing for both pre and post tests. Although not statistically significant there was a positive trend overall of understanding increasing and bluffing decreasing after the group therapy.

Statistically significant results

Client 1

Appendix 5 shows a significant result for client 1 when the topic was familiar and auditory and visual cues were provided during the post test for percent understanding compared to when the topic was unfamiliar and only auditory cues were provided during the post test for percent understanding. The judges ratings were statistically more consistent for client 1 for percent understanding of the conversation in the post test when auditory and visual cues were provided. The judges agreed that client 1 understood 92 to 98% of the conversation when the topic was familiar and auditory and visual cues were provided. The judges range for client 1's understanding of the conversation in the post test when the topic was unfamiliar and only auditory cues were provided was 58 to 89 %. (appendix 5)

Client 2

Appendix 5 shows a significant result for client 2 in percent understanding when the topic was unfamiliar and only auditory cues were provided pre vs. post test. The judges were consistent in that they all felt that client understood more in the post test for this condition. (appendix 5) Client 2 also showed signs of ceiling and flooring effects for all conditions. (appendix 5) She had very little room to improve for the post test.

Client 3

Appendix 5 illustrates that client 3 showed signs of ceiling and flooring but to a lesser degree than client 2.

The questionnaire also addressed repair strategies use (RSU), appropriate topic changes (ATC), appropriate share of conversation time (ASCT), smooth turntaking (STT), and appropriate relinquishing of turn (RT). The results are reported for each client individually. (figures 1-1-1-6) The figures look at the number of judges who perceived the client as using repair strategies, appropriate topic changes, appropriate share of conversation time, and appropriate relinquishing of turn pre vs. post test for both conditions.

Client 1 auditory plus vision familiar topic pre and post test.

Figure 1-1 illustrates that the judges did not observe repair strategies being used in either the pre or post test when the topic was familiar and both auditory and visual cues were available. Judges did observe more appropriate topic shifts, more appropriate share of conversation time, more smooth turntaking, and more appropriate turn relinquishing during the post test compared to the pre test.

Client 1 audition only unfamiliar topic pre and post test.

Figure 1-2 illustrates that judges observed repair strategy use, appropriate topic shifts, appropriate share of conversation time, smooth turntaking, and appropriate turn relinquishing during both the pre and post test when the topic was unfamiliar and only auditory cues were available.

Client 2 auditory plus vision familiar topic pre and post test.

Figure 1-3 illustrates that the judges viewed client 2 as using repair strategies, appropriate topic shifts, appropriate share of conversation time, smooth turntaking, and appropriate turn relinquishing for this condition during both the pre and post test. The ceiling effect was seen here. Client 2 had no where to improve for the post test, except for smooth turntaking. The judges did not observe client 2 as using smooth turntaking in the pre or post test.

Client 2 audition only unfamiliar topic pre and post test.

Figure 1-4 illustrates during this condition that judges observed client 2 as using repair strategies, appropriate topic changes, appropriate share of conversation time, and appropriate turn relinquishing for both the pre and post test. The judges viewed client 2 as not using smooth turntaking during the post test. The judges viewed client 2 as possessing appropriate skills during pre-testing in all conditions, thus a ceiling effect was seen and improvement could not be judged.

Client 3 auditory plus vision familiar topic pre and post test.

Figure 1-5 illustrates that the judges did not view client 3 using repair strategies when the topic was familiar and auditory plus visual cues were provided in either the pre or the post test. Client 3 was viewed as using appropriate topic changes,

appropriate share of conversation time, and appropriate turn relinquishing during the pre and post test measures, also illustrated in figure 1-5.

Client 3 audition only unfamiliar topic pre and post test.

Figure 1-6 illustrates that the judges observed client 3 as tending to use more repair strategies in this condition for both pre and post test, although he was perceived as using more in the pre test condition. The use of appropriate topic change, appropriate share of conversation time, and appropriate turn relinquishing as viewed by the judges was seen for both the pre and post test measures, also illustrated in figure 1-6. Client 3, like client 1, was viewed as using more repair strategies when the topic was unfamiliar and only auditory cues were provided. Client 3 was viewed as using appropriate topic changes, appropriate share of conversation time, and appropriate turn relinquishing during the pre and post test measures, illustrated in figure 1-6. He was viewed as being successful for both pre and post test measures.

Rating scale results

Rating scale 1- How the client would have made the judges feel if the observer had participated in the conversation.

Figures 1-7-1-11 show mean ratings of the judges reactions to the clients using the six point scale shown in appendix 4.

Figures 1-7-1-11 illustrate that judges observed a significant overall positive effect for the following conditions: (a) pre vs post test ratings of familiar topic, audition plus vision , and (b) post test ratings of familiar topic, audition plus vision vs unfamiliar topic, audition only. Clients 1 and 3 showed a positive

effect for both of these conditions. The judges felt more comfortable with clients 1 and 3 during the post test vs the pre test when a familiar topic was discussed and auditory plus visual cues were provided, and during the post test when a familiar topic and auditory plus visual cues were provided vs when a unfamiliar topic was discussed and only auditory cues were provided. Client 2 was observed as showing a significant positive effect in the second condition- post test ratings of familiar topic, audition plus vision vs unfamiliar topic, audition only. The judges felt more comfortable with her during the post test when auditory plus visual cues were provided and the topic was familiar compared to the post test when only auditory cues were provided and the topic was unfamiliar.

This positive effect was seen across all assessed dimensions (see list of adjectives) for these conditions, by using a sign test, for all clients. Appendix 6 lists pre and post test means and the differences between the means for each condition listed above.

Rating Scale 2- How the client appeared to the judges.

Appendix 7 illustrates that the judges in general observed no significant effect overall for this scale. The only significant results that were observed were for client 3 when auditory plus visual cues were provided and the topic was familiar pre vs post test. A positive effect was observed by the judges for the post test measures. The judges viewed the clients' appearance as improving in the post test. A negative effect was observed by the judges for client 2 when only auditory cues were provided and the topic was not familiar pre vs post test. The judges viewed client 2's appearance as being better in the pre test.

Denver Scale Results

Appendix 8 shows the Denver Scale results. The Denver Scale is an assessment of self perceived handicap as a result of hearing impairment. The results are divided into four categories- family, self, social-vocation, and communication. Moving towards the disagree on the scale shows improvement. Some positive shifts were seen for all clients after the completion of the group therapy program.

Client 1

Client 1 showed positives shifts in the family and self categories. He felt more positive about himself and his families reactions to his hearing impairment after the completion of the group therapy. (appendix 8)

Client 2

Client 2 showed positive shifts in the family category and some positive shifts in the social-vocational category. She felt better about her families reactions towards her hearing impairment and in some situations about herself during social and vocational activities after the completion of the group therapy. (appendix 8)

Client 3

Client 3 showed some positive shifts in the family and social-vocational categories. He felt better about his families reactions towards his hearing impairment and in some situations about himself during social and vocational activities after the completion of the group therapy. (appendix 8)

DISCUSSION

Overall, the results of this study revealed that communication-based aural rehabilitation had a positive effect on all three clients. Although all the results were not statistically significant there were definite positive trends. When looking at the overall understanding and bluffing during the pre and post test, all the clients either increased understanding and decreased bluffing or remained the same during the post test conditions compared to the pre tests. (tables 1-5-1-8) Also, when the topic was familiar the understanding tended to be higher and the bluffing tended to be lower for both pre and post tests. These results are as one would expect. When one knows the topic and has both auditory and visual cues provided understanding increases and bluffing decreases. The need for repair strategies in this condition also decreases, because the understanding has increased; as was seen for clients 1 and 3. It was hard to judge success for client 2 in this condition because of the ceiling effects which took place. It was in this condition that the judges felt more comfortable with the clients. (figures 1-8-1-11) The topic is familiar, understanding is high, bluffing is low, and auditory and visual cues are provided; therefore one would expect to feel more comfortable around a hearing-impaired person. The judges tended to feel uncomfortable around the hearing-impaired clients when the topic was unfamiliar and only auditory cues were provided during the post test, although it was in this condition that all three clients were using repair strategies. Are the repair strategies unnatural? Maybe after practicing over and over again different repair strategies to use when communication breaks down for eight weeks has made the clients' repair strategy use unnatural. Are the judges uncomfortable with this condition? The topic is unfamiliar to the client (maybe making the conversation somewhat difficult to follow or boring) and only

auditory cues are provided; thus the client is forced to use more repair strategies because he knows little about the topic and he cannot see the clinician. It is a difficult listening situation and that in itself may make the judges feel more uncomfortable around the clients. Whatever the answer is, it is evident that communication-based rehabilitation needs to focus on the natural use of repair strategies and the overall effect that conversations have on others when unfamiliar topics are discussed and only auditory cues are available.

Metacommunication should also be addressed. Does having a conversation in a difficult listening condition send negative non-verbal information to ones communication partner? "The exact conditions under which explicit metacommunication can serve to help rather than harm a relationship are not yet known, but we do know that people often actively avoid explicit metacommunication" (Wilmot, 1987). The following figure shows what effect metacommunication can have on a conversation.

Conversation		Repair Strategy	
Fluent	Metacommunication Not Noticed	Metacommunication Noticed	
Nonfluent	Breakdown	Breakdown and Metacommunication Noticed	
	Transparent	Apparent	

When a conversation breaks down a repair strategy is necessary. The repair strategy can either lead to fluent or a non-fluent conversation. A transparent

repair can lead to fluent conversation in which metacommunication goes unnoticed. The repair does not break the flow of conversation. An apparent repair can also lead to a fluent conversation, but in this case metacommunication will be noticed. The repair here leads to a break in the flow of conversation. If the repair is transparent and leads to non-fluent conversation a breakdown in the conversation will occur, but the metacommunication will go unnoticed, because the repair does not impede the flow of conversation. If the repair is apparent and the conversation is non-fluent, then both a breakdown and metacommunication will be observed. Metacommunication can have an effect on conversations; therefore more research should be done looking into if and how metacommunication effected the judges observations. The use of metacommunication during inappropriateness of topic shifts, share of conversation time, turntaking and relinquishing of turn should also be researched. One would think metacommunication would be noticed in these situations.

The judges did not observe any significant change in the clients appearance during the post tests conditions except a significant negative effect was seen for client 2 when the topic was unfamiliar and only auditory cues were provided and a positive shift was seen for client 3 when the topic was familiar and auditory and visual cues were provided. Client 3 was not using repair strategies in this condition. Client 2 was using repair strategies when this negative shift was seen. Communication was breaking down forcing her to use repair strategies, specific repair strategies that she was taught during therapy. Did the way the strategies were implemented disrupt the judges' perception of conversational fluency? Was the condition itself making the judges uncomfortable? These are questions that must be answered and incorporated in communication-based aural rehabilitation programs for hearing-impaired adults.

TOPICON (Erber,1988) was a successful tool for judging the success of the rehabilitation program. The viewing of the videotapes and completing of the rating scales were extremely time consuming. Objective results were seen, but less time-consuming measures need to be researched and used in judging the success of aural rehabilitation programs for hearing impaired adults.

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TABLES

Table 1-1. Some personal sources of "satisfaction" in conversation, as expressed by a large group of normal-hearing adults (Erber, 1988).

Temporal aspects/rhythm of interchange

- * Each speaker will occupy an appropriate share of conversation time.
- * Turntaking will progress smoothly. There will be few interruptions or gaps. Occasional thoughtful silences, however, can be important.
- * One's communication partner will know when to relinquish his/her turn.
- * Little content will be predicted, but some ritual may be necessary when conversations begin or end.

Meta-communication/clarification

- * The two communicators will possess overlapping linguistic competence.
- * Each communicator will understand the other. Perceptual errors and cognitive confusions will be infrequent. Little conversation time will be devoted to repetition or clarification. (Yet, a communicator may be disappointed if he/she thinks that no clarification will ever be required, i.e., if one expects no confusions, contradictions, or challenges).

Topic

- * One's communication partner will possess similar world knowledge and life experiences.
- * The topic will be interesting.
- * Abrupt digressions into new, perhaps related, topics will be infrequent. (Conversations, however, might be extremely boring and/or frustrating if the two communicators always maintained the topic, possessed identical knowledge, and agreed on everything).

Intimacy/sensitivity

- * The communication partner will understand one's thoughts and feelings.
- * One will understand the other communicator's thoughts and feelings. (That is, condition of shared intimacy will exist, where one's beliefs, self-worth, and conditions of existence will be verified. If a state of perfect understanding existed and all utterances could be predicted, however, there would be little need for overt conversation).

Information

- * One will acquire new information and/or obtain a new viewpoint.
- * One will help the other to acquire information and/or obtain a new viewpoint.

Time/direction/fantasy

- * Each communicator will help the other to recall shared ideas, beliefs, and experiences.
- * Each communicator believes that the conversation has a purpose and direction-progressing toward a common goal.
- * Different objectives and points of view will be expressed, developed, and defended.
- * The two communicators will mutually agree on a belief or a plan for action.
- * One communicator will inspire the other to action.

Attitude

- * One's communication partner will enter the conversation without conscious biases and without a disruptive attitude (e.g., re choice of topic or time available). Yet, another person's strong opinions can be interesting-to examine, criticize, or support.

Honesty

- * One's communication partner will express "truth", or will distort/exaggerate in ways that are interesting, exciting, or humorous.
- * One will enjoy the other communicator's company. The conversation will serve to bring them together for psycho/social/sexual contact. The conversation will provide (future) access to the individual for unexpressed, hidden purposes.

Power/control

- * One will be able to dominate, overpower, or control the other-through logical argument, greater knowledge, subtlety, harassment, or voice level.

Table 1-2. Some potential sources of difficulty in face-to-face conversation (Erber, 1988).

Hearing-impaired person:

- A. Inability to detect, discriminate, or identify units of speech
- B. Poor understanding of one's own perceptual limitations
- C. Poor planning for the conversation
- D. Poor meta-communication skills
- E. Incorrect setting or malfunction of hearing aids
- F. Personal discomfort, resulting from fatigue or illness
- G. Inattention

Message structure or content:

- A. Unfamiliar topic; abrupt shifts in topic
- B. Uncommon words, technical terms, jargon
- C. Colloquial expressions
- D. Unusually long sentences
- E. Complex syntax
- F. Several sentences presented in succession (narrative)

Communication partner's speech:

- A. Syllable rate too rapid
- B. Voice level too low, fluctuates, decreases
- C. Voice pitch too high, fluctuates, increases
- D. Careless articulation
- E. Foreign or regional accent: unusual prosody/intonation/stress
- F. Head moves during speech production
- G. Mouth/face obscured by hands, hair, object
- H. Lack of awareness/cooperation re clarification strategies

Communication environment:

- A. Great distances between communicators
- B. High noise level
- C. Excessive reverberation
- D. Low illumination level
- E. Glare from reflecting objects
- F. Visible distractions

Table 1-3. Conditions in which videotapes were viewed.

Condition A

Audition + Vision-Familiar Topic
Pre and Post Test

Condition B

Audition Only-Unfamiliar Topic
Pre and Post Test

Table 1-4. Randomization schedule for judges. Viewing order.

	FIRST	SECOND	THIRD	FOURTH
Judge 1	Client 1	Client 2	Client 3	Client 1
Judge 2	Client 2	Client 3	Client 1	Client 2
Judge 3	Client 3	Client 1	Client 2	Client 3
Judge 4	Client 1	Client 2	Client 3	Client 1
Judge 5	Client 2	Client 3	Client 1	Client 2
Judge 6	Client 3	Client 1	Client 2	Client 3
Judge 7	Client 1	Client 2	Client 3	Client 1
Judge 8	Client 2	Client 3	Client 1	Client 2
Judge 9	Client 3	Client 1	Client 2	Client 3

Table 1-5. % of conversation client appeared to understand-(mean ratings of judges) Condition A-auditory/visual familiar topic

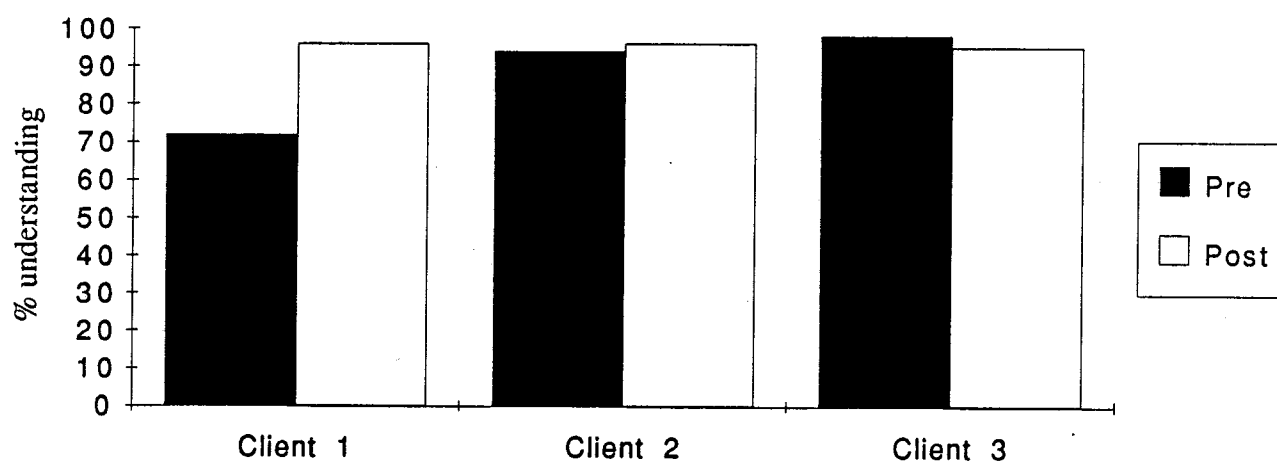


Table 1-6. % of conversation client appeared to be bluffing-(mean ratings of judges) Condition A- auditory/visual familiar topic

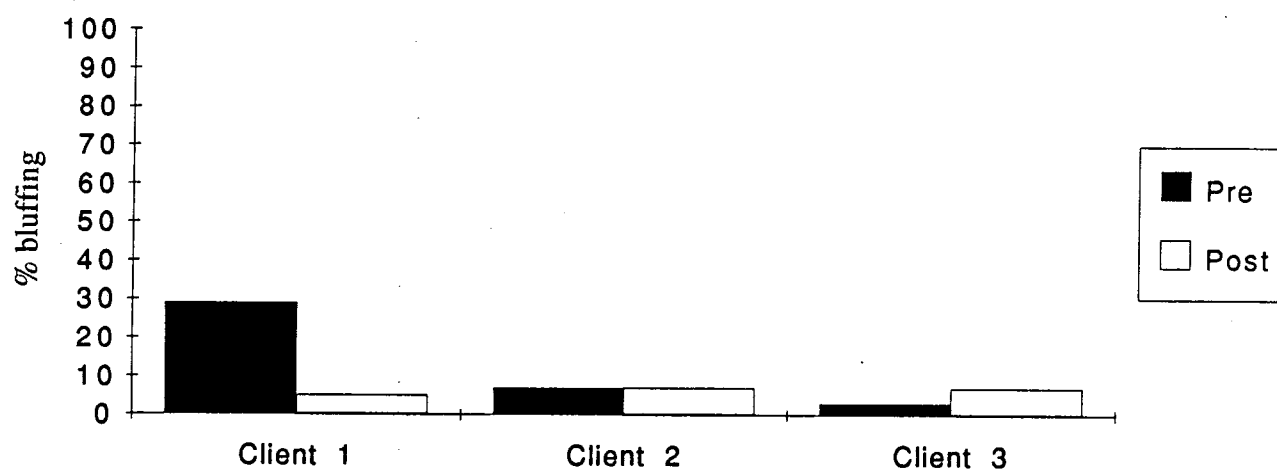


Table 1-7. % of conversation client appeared to understand-(mean ratings of judges) Condition B- auditory only unfamiliar topic

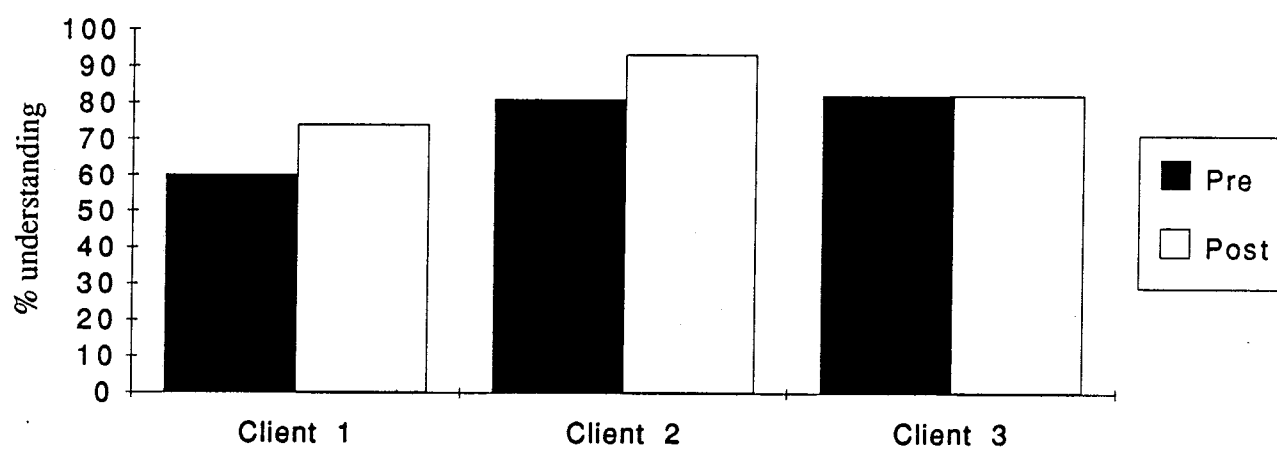
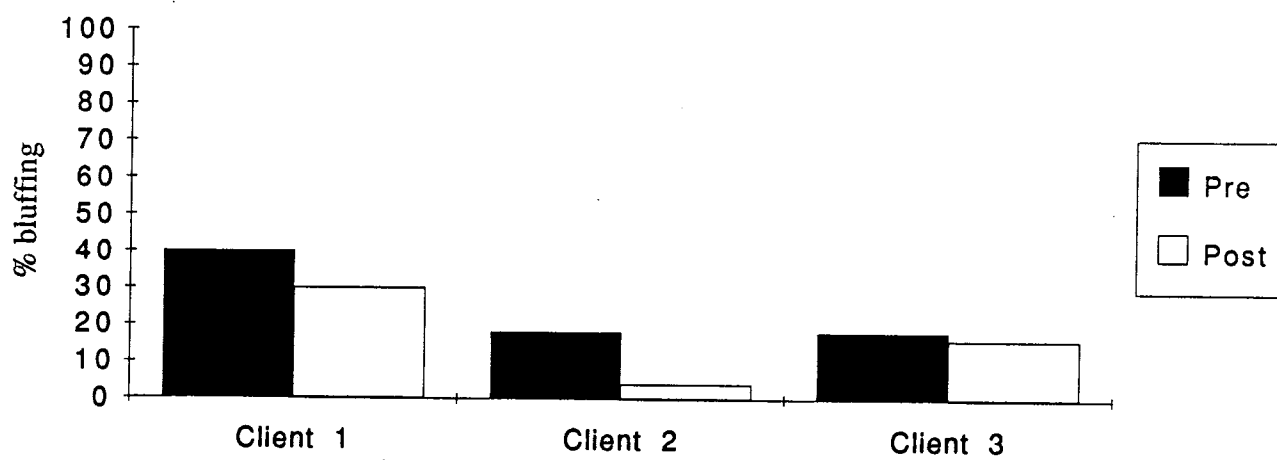


Table 1-8. % of conversation client appeared to be bluffing-(mean ratings of judges) Condition B- auditory only unfamiliar topic



FIGURES

Figure 1-1. Client 1. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition plus vision familiar topic.

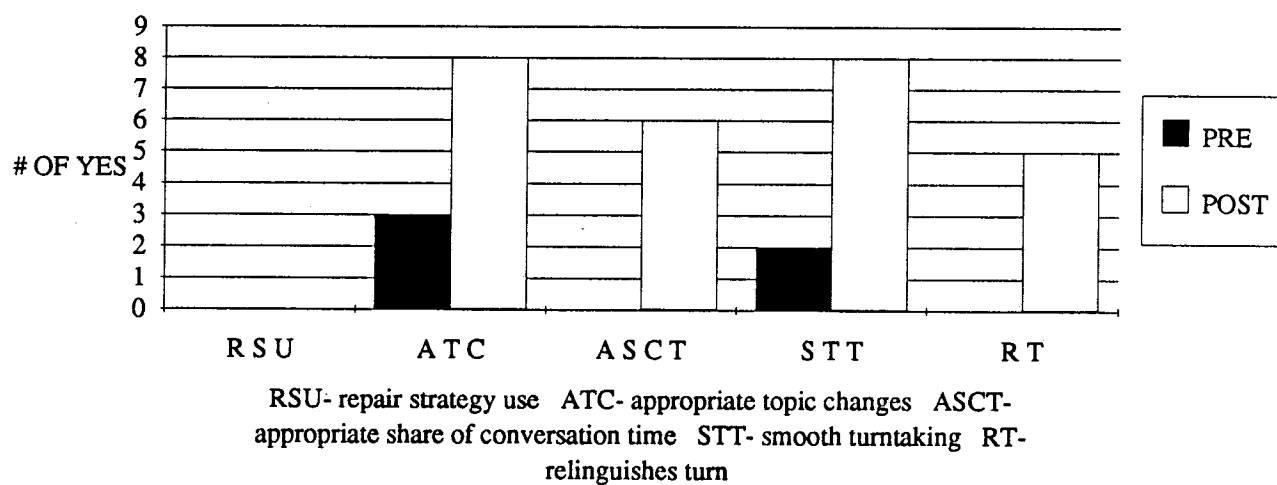


Figure 1-2. Client 1. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition only unfamiliar topic .

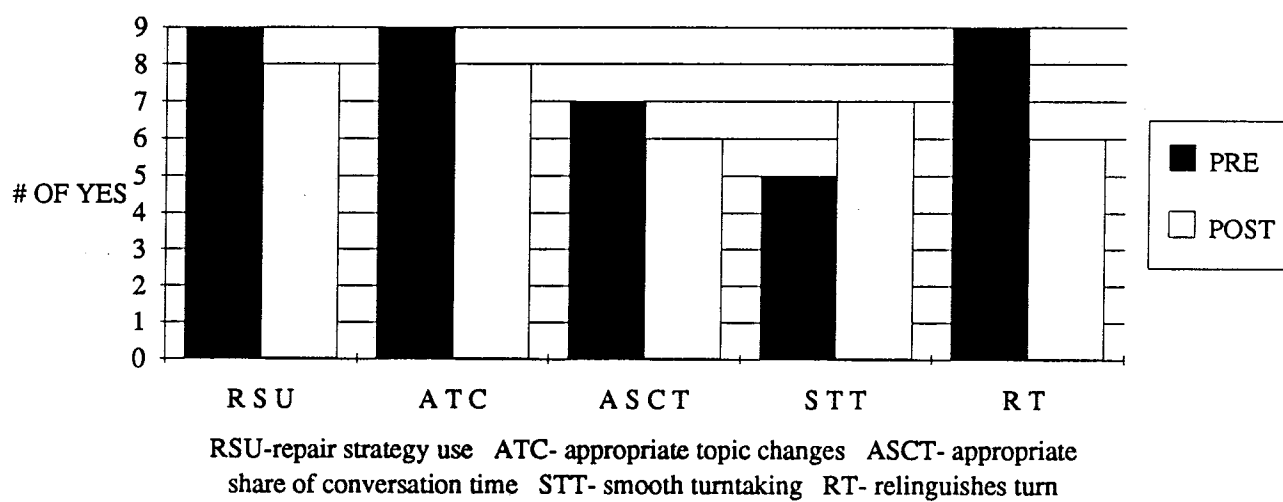


Figure 1-3. Client 2. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition plus vision familiar topic.

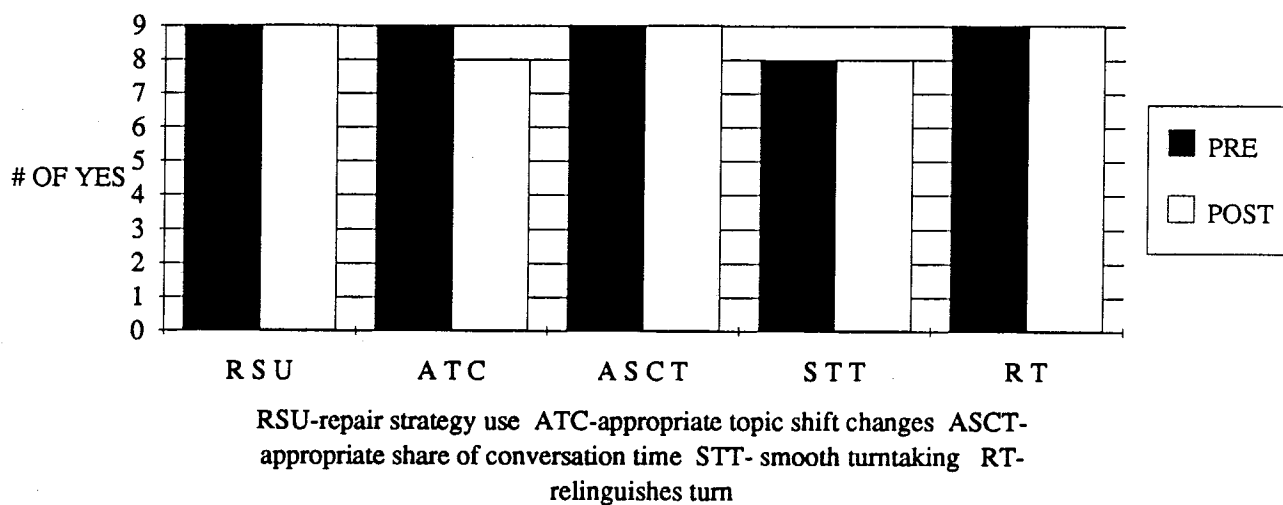


Figure 1-4. Client 2. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition only unfamiliar topic

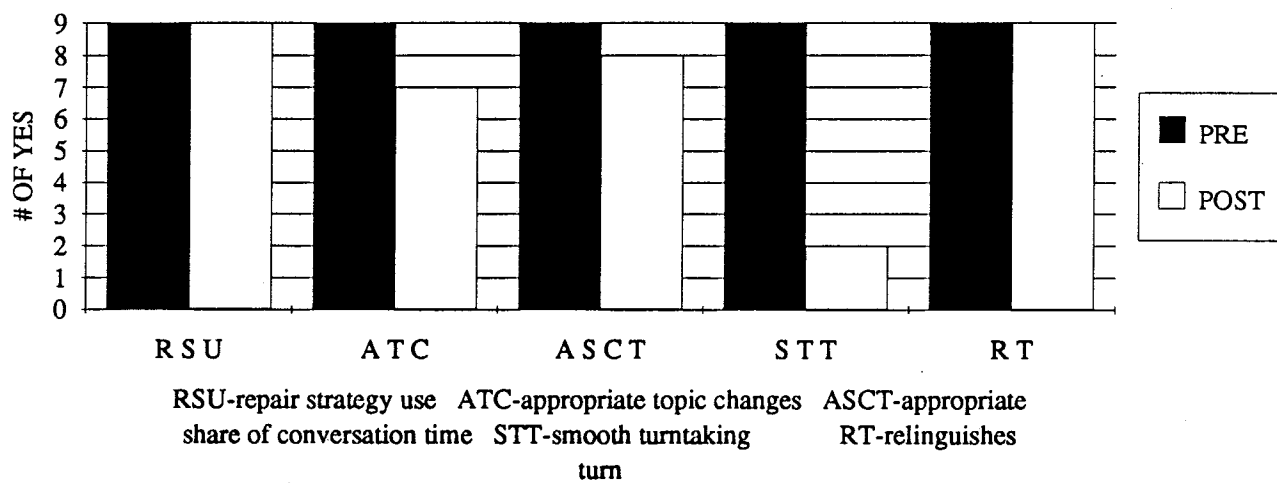


Figure 1-5. Client 3. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition plus vision familiar topic.

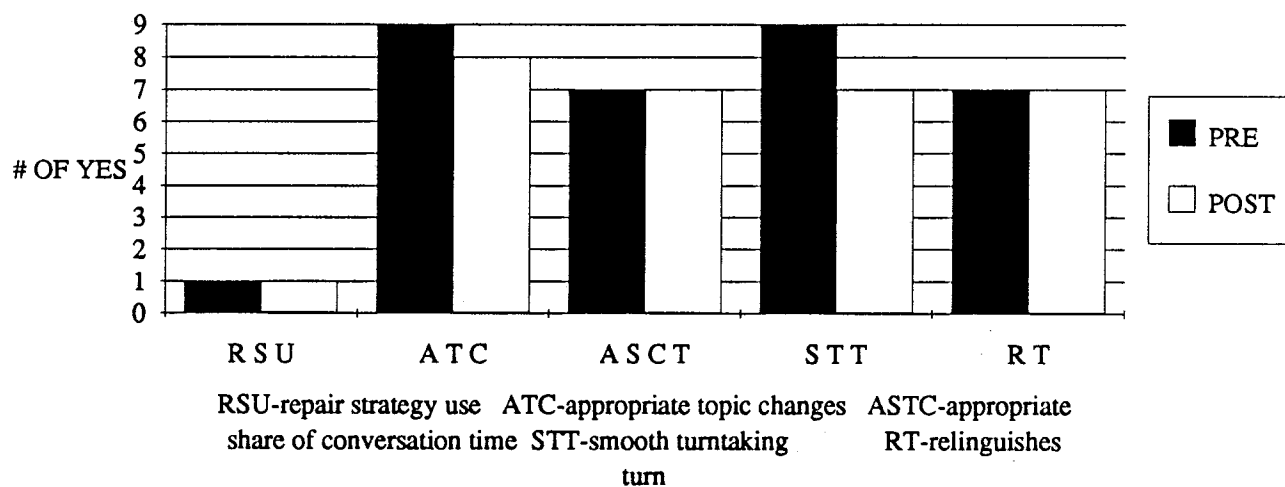


Figure 1-6. Client 3. # of judges who observe RSU, ATC, ASCT, STT, and RT. Condition-
audition only unfamiliar topic.

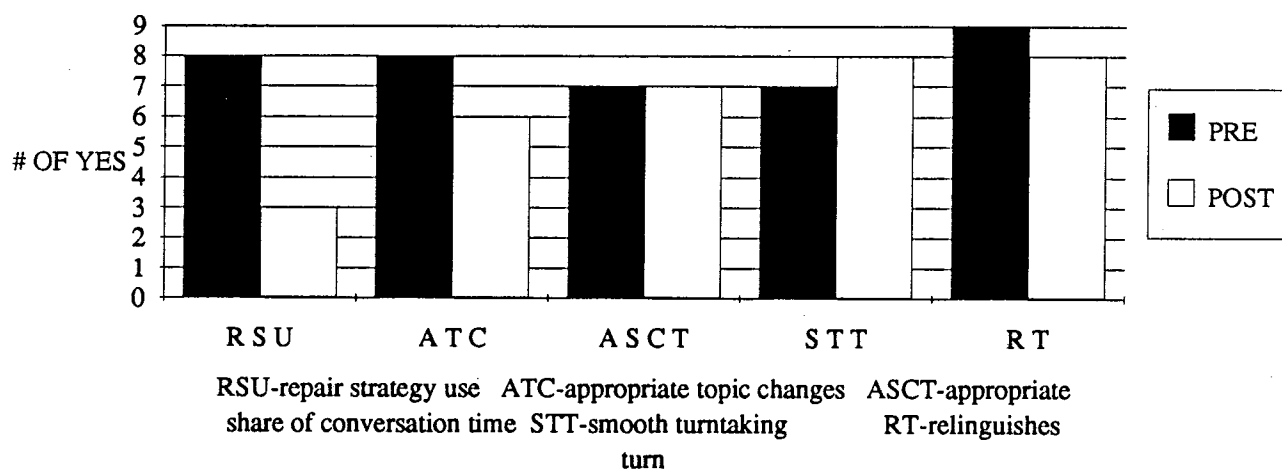


Figure 1-7. Mean Pre-vs-Post. Ratings of judges reactions to client 1.
Condition: Familiar topic, Audition plus vision

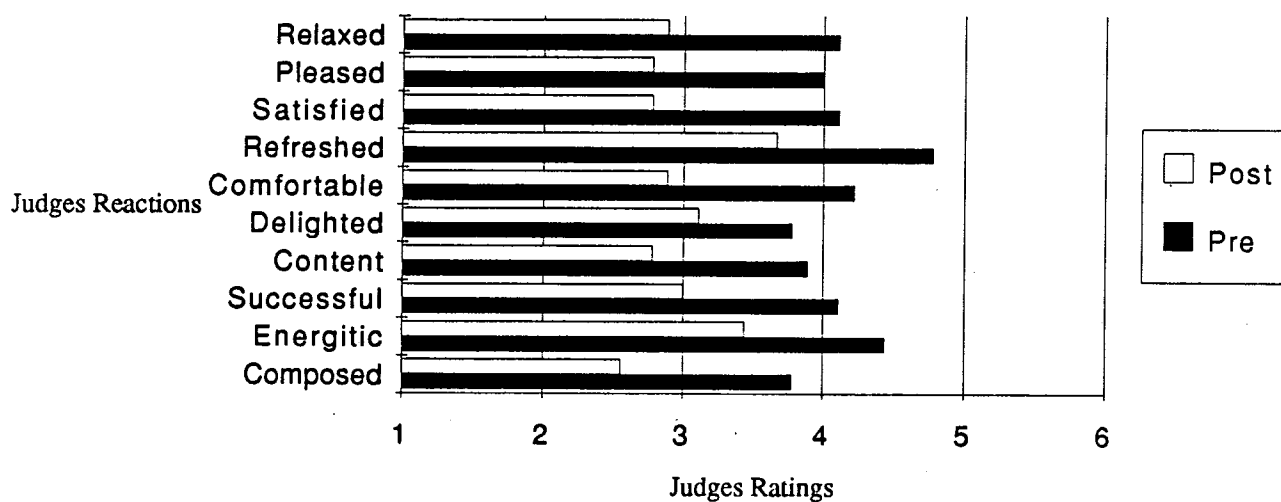


Figure 1-8. Mean Post Test- Ratings of judges reactions to client 1.
Condition: Familiar AV (filled), Unfamiliar A (unfilled)

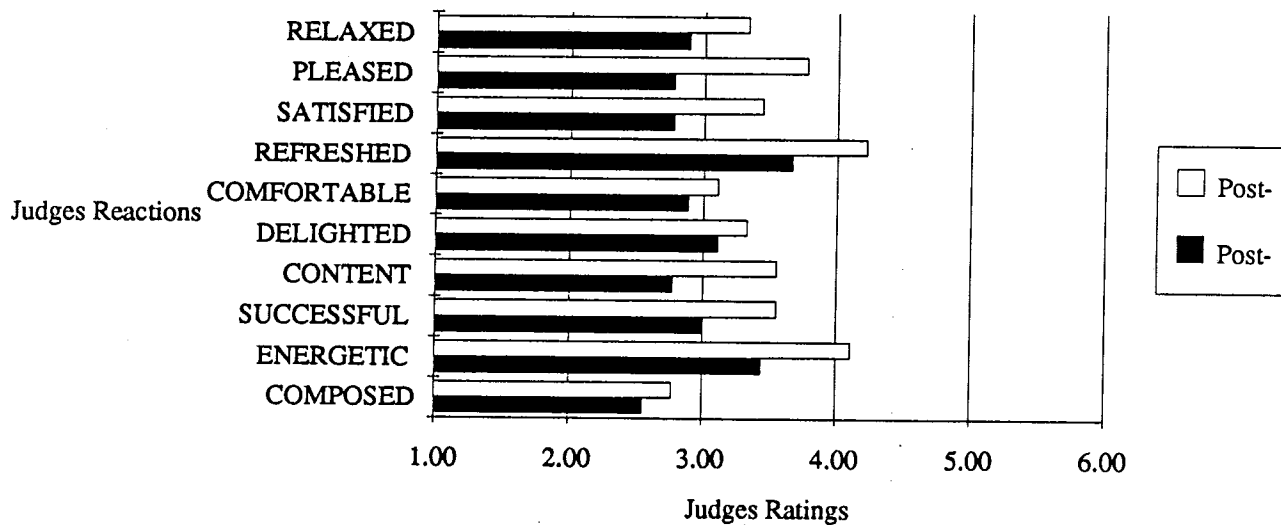


Figure 1-9. Mean Post test Ratings of judges reactions to client 2.
 Condition- AV- Familiar topic (filled), A- Unfamiliar topic (unfilled).

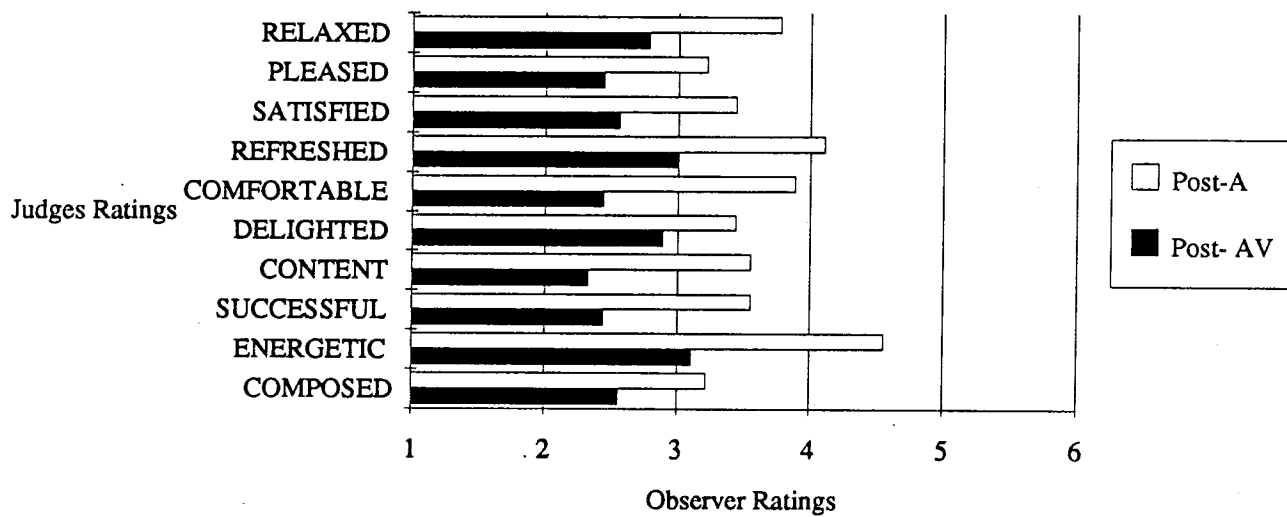


Figure1-10. Mean Pre-vs- Post. Ratings of judges reactions to client 3.
Condition- Audition plus vision, Familiar topic

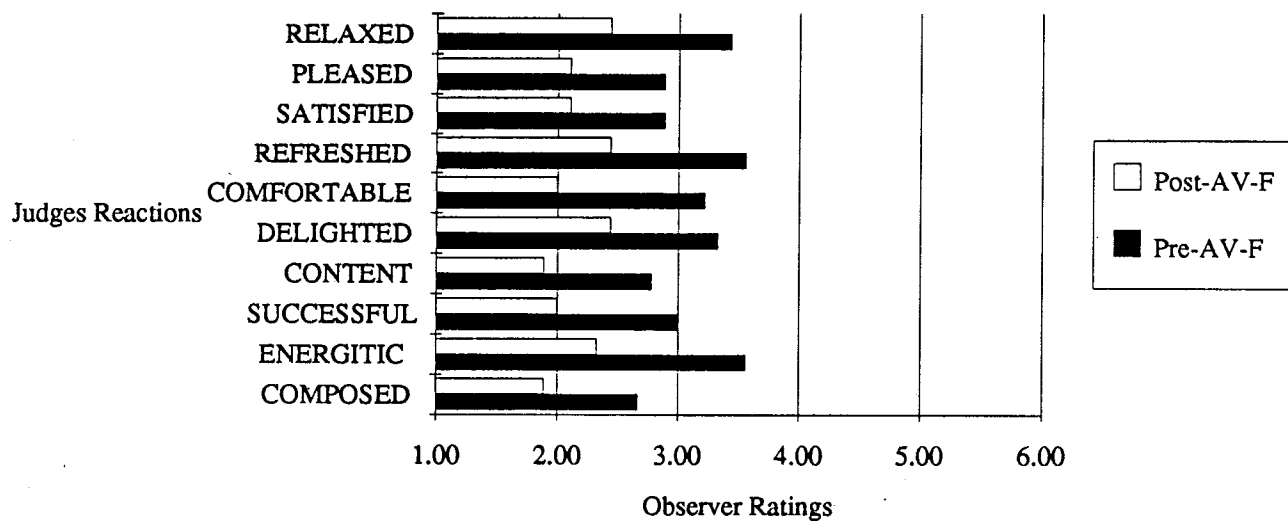
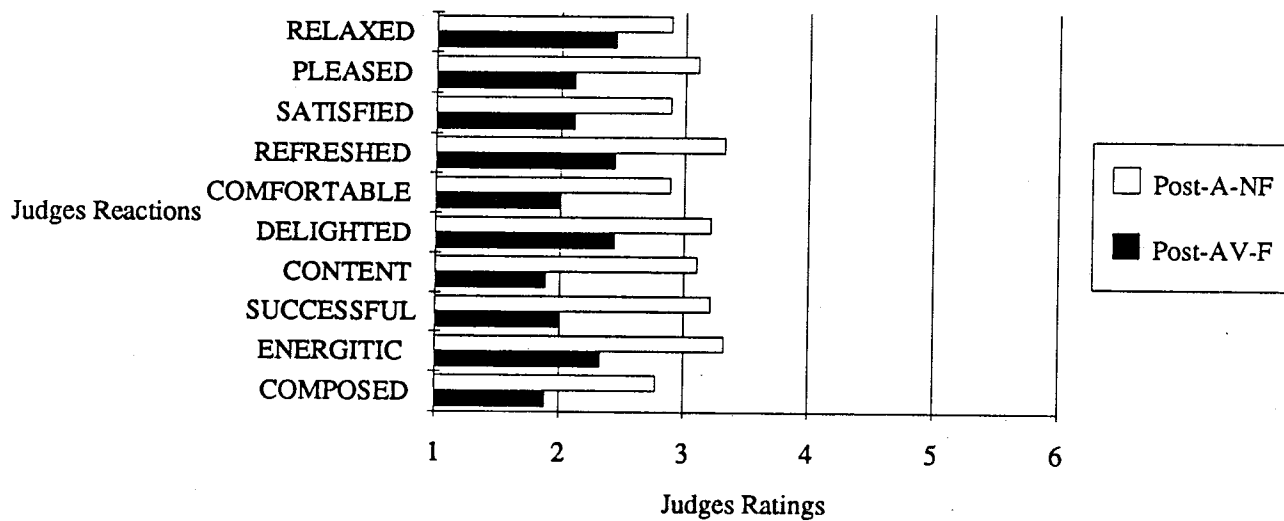


Figure 1-11. Mean Post test ratings of judges reactions to client 3.
 AV Familiar topic (filled), A- Unfamiliar topic (unfilled).

Condition-



APPENDIX

APPENDIX 1

APPENDIX 1

GENERAL DESCRIPTION OF THE PROGRAM

The program was designed for six to eight moderately hearing impaired adults. There were no age constraints. It consisted of eight two hour weekly sessions and a pre and post test.

PRE-TEST ASSESSMENT

1. Introduction and explanation of the program

It was emphasized that a remediation process does not cure or remove a hearing loss. Rather, it teaches the client to make the maximum use of his or her hearing and to use communication repair strategies effectively (Alpiner and McCarthy, 1987).

The following questions were addressed to each client:

- a. What is "communication?"
- b. What do you expect to get out of this program?
- c. What causes you the most communication difficulties?

2. Basic audiological assessment

- a. Pure tone testing - both air and bone conduction
- b. Speech audiometry - speech reception thresholds and a word recognition score.

3. Hearing aid evaluation

4. Perceptual testing

The Iowa test of lipreading was used.

5. Conversation evaluation

Conversation was evaluated using TOPICON (Erber, 1988).

6. Hearing handicap scale

The Denver Scale of Communication Function (Alpiner and McCarthy, 1987) was used.

General format of the weekly sessions

1. General discussions - 25 minutes
 2. Communication strategies - 35 minutes
 3. Break - informal discussions/social - 10 minutes
 4. Communication strategies/perceptual training - 35 minutes
 5. Review, homework assignment - 15 minutes
- Different assistive listening devices were demonstrated throughout the program.

Post Test Assessment

The perceptual testing, TOPICON, and The Denver Scale of Communication Function were used for the post test. Pre and post assessments were compared to judge the success of the program.

APPENDIX 2

Name:

Date:

Please:

Highlight in pink six topics in which you are knowledgeable and interested.

Highlight in orange six topics in which you know little about and do not interest you.

In addition, feel free to add any particular topics of interest.

TOPICS

CARDS	CAR REPAIR	BEST RECIPES
DANCING	BOOKS	GARDENING
GOSSIP	SMOKING	TENNIS
WAR	STAMPS	SAILING
SHOPPING	KNITTING	NATIONAL PARKS
ASTROLOGY	VITAMINS	GOLF
TELEVISION	ELECTRONICS	THE THEATER
NEW CLOTHES	EXERCISE	FAMILY
RESTAURANTS	CATS	WRITING POETRY
HIKING	SWIMMING	CLOSE FRIEND
EDUCATION	JEWELLERY	BABIES
FISHING	CAMPING	OLD MOVIES
WEATHER	WINE	HOLIDAYS
DOGS	TRAIN TRAVEL	LAST WEEKEND
COMPUTERS	POLITICS	US HISTORY
MUSIC	ART	RECENT ILLNESS

APPENDIX 3

APPENDIX 3

Auditory only- familiar topic- The War

First Interchange

Clinician - Let's talk about the war.

Client - Actually, it is the reverse of that, what I really want to talk about is the peace, but we are dealing with war today. One of my great honors in recent months is to be on the board of peace and justice. It is a national organization. I was not personally involve in the war but I was in the pacific the last eight months of our war with Japan. I was in every island Saipan, Guam, Hiroshima. I went to the Philippines. My class was scheduled for the invasion of Japan and while fortunately I saw no war I saw and talked with hundreds of officers.

Clinician - When was this?

Client - Beg your pardon

Clinician - When was this?

Client - Well, the war ended on September, August 14, 1965.(1945)

Clinician - So you are talking about World War Two.

Client - World War Two

Clinician - You actually never saw the war

Client - Well I was never with any

Clinician - Fighting

Client - No fighting, I was always fortunately a few months behind the islands as they were being swept up by our enemy

Second Interchange

Clinician - What do you think about the war that is going on right now.

Client - Well I think it is atrocious um I regret the loses of lives. I had opted the continuation of sanction. I really felt that many of our top military due to the state might have persuaded Sadaam to eventually back out, and um I think we are going to suffer tremendous causalities

Third Interchange

Clinician - Do you think we should support our troops and our country

Client - (jumps right in before I finish) You that is an acquisition that has always leveled by anyone who says a lot about peace. The observation and the perception is well your against the troops because that is our heritage from Vietnam and the Americans were not in support of the troops from Vietnam although I was at the time. I don't see how anyone in favor of peace as I am can possibly be against our troops you know naturally. It comes right down to this who I oppose is President Bush I oppose Dick Cheney approach to this thing and uh and I heard Schwartzkopf when he came out of Grenada say this was like a movie production down there this was a joke, they were using their Southwestern Bell telephone cards to contact the troops because the military thing didn't work, I am convinced today that much of what is being relayed to us is absolutely the truth and I am only going to quote one of the generals who was defrocked and sent home and that was general Doogan, General Doogan said the first thing to expect when you are reporting on a war is that the initial information is all false in fact we were told yesterday that there were a thousand troops moving out of Kuwait, today the British generals denied it, they said no that not right

Fourth Interchange

Clinician - I guess we really won't know what is going on

Client - (jumps in) No and we will never know because their not letting Ted Koppel in their not letting well they have Peter Arnett is the only guy that is their, the rest are all in pools (he is talking over me)

Clinician - Well I have been trying to watch it anyway on CNN and all the news channels just so I can be more knowledgeable about it

Client - a huh (not sure he understood)

Clinician - I think we should support them know that we are there, maybe it wasn't the best think that happened but now that we are there we should be behind them 100%

Fifth Interchange

Client - Elizabeth, four years ago I covered 7000 miles of the Soviet because my wife is of Yukranian heritage She is first generation. What I wanted to see is what happen in the Soviet Union. I saw a grave of 750,000 people in one grave and I came home never forgetting that the Soviets, we called them Russians but there are 15 republics there. The Soviets lost 20 million people. The American

causalities were 300,000 so we have no perspective at all of the cost of World War Two there is only a hand full of people really. In the Soviet men of my age, age 66 wear all medals even in their civilian clothes, why because they are really unique there are so few of them left, they were all killed.

Audition + Vision - Unfamiliar topic - Computers

First interchange

Client - I don't know anything about computers, Elizabeth

Clinician - You know nothing about computers?

Client - Nothing

Clinician - I just purchased a computer so maybe I can talk about this for a little while

Client - Yeah

Clinician - I purchased the Macintosh Classic

Client - Oh, the Apple

Clinician - Yeah, the apple

Client - The apple

Clinician - I hope I didn't make a mistake, but it is easier for me to use. I use to be computer illiterate before I purchased it and I have learned lots about it the month that I have had it. I think they're so important. I don't know how I lived without it. It is so important, I do all my work on it.

Client - Do you use it, Do you use it for your own budget?

Clinician - My dad thinks I should put my checkbook on there.

Client - I think that would be a marvelous idea

Clinician - (at same time) but I haven't done that yet, He thinks maybe that would help me balance my checkbook. Um, I doing mostly school work on there, putting notes on there, it's great, it's so easy to use, it tells you exactly what to do

and it is so much better than writing it out. It is more presentable, you should try one some time.

Client - (jumps in) I don't have any uh great antipathy towards one as a matter of fact I went to Ladue High School and took a course three years ago just so I could familiarize myself with it, but see I am just basically a salesman and a salesman doesn't deal with mechanical equipment, and there again when I do need computer work then I always had a secretary until two years ago when she retired, and uh she would do all of those sorts of things for me

Clinician - Before I bought it I said I would never have one, it's too hard and they always mess up and you can't make um work but now I am glad I have one

Second interchange

Client - Now what you should do until by Wallstreets weekend wrap up on Friday nights is buy some stock

Clinician - Some stock in apple?

Client - Because they're considered to be, they're going to be right along side by IBM

Clinician - When I start making money maybe I'll buy some

Client - O.K.

Clinician - Right now I can't buy stock in anything because what I have left over is to pay my bills

Third interchange

Client - Well the little red car costs money, doesn't it?

Clinician - Right

Client - You do have a little red car

Clinician - No, I used to have a little red car

Client - All you college graduates do

Clinician - Little red cars

Client - Little red cars because you pass me all the time on the highway, their is another audiologist passing me up (same time clinician said little red cars and computers)

Clinician - Maybe some day I'll have another little red car and maybe I'll have a computer in my little red car, I guess their are lots of computers in cars now days

Client - I'm sorry (leans forward)

Clinician - I said I guess there are lots of computers built in cars now days

Client - um huh (don't think he got it)

Fourth Interchange

Clinician - Everything they do is with computers

Client - Right

Clinician - So computers are very important, but if you don't need one in your job then they're not, just with new technology out, I think it will benefit me , what I am doing an audiologist

Fifth Interchange

Client - (breaks in) My son, Mark graduated from Carnegie Melon five years ago with a major in economics but as a fun thing he learned how to do computers, now today he is a senior analyst in the World Trade Center in New York for Dewight Tush CPA's and he's got a fabulous job and he might possible wouldn't have any had to go to college, he tells me because he can do computer so well

Clinician - That's great

Client - Um, a matter of fact he was in Saudi Arabia three months ago doing um the Iraqi Oil um budget for next year which is owned by Saudi company you know, which is what this thing is all about really

Clinician - That's interesting, I guess he can do your computer work for you

Client - Oh yes he does yes yeah , if I want anything done Mark just does it

Clinician - That's great

Client - If I need a car fixed I have a specialist on that, everyone of my five sons have different capabilities

Clinician - That's great so you don't have to do anything

Client - I really don't, I haven't done anything for 40 years I just have fun

Clinician - That is wonderful

Client - Doug didn't think I was stating true facts

Clinician - Maybe

Auditory + Vision - Familiar Topic - Writing Poetry

First Interchange

Clinician - I don't know much at all about writing poetry and I would like to learn something

Client - Well I'm not sure you came to the right source what I

Clinician - Have you ever written a poem, have you ever had one published

Client - No I never had one published, I write it for my beloved spouse, you know uh when ever the feeling or the sensitivity strikes me then I write a poem to her, uh although I may write about a number of subjects uh because one of the finest teachers I ever had was my English teacher in high school even above and beyond college and uh I felt at the time that it was certainly true I had a great need for culture because where I grew up I had a very acute lack of culture, no music, no poetry, and I thought it was a tremendous gift to read what people like uh Longfellow uh all the American poets in particular how they could uh give such a sensitivity to words and she told me not to try to do poetry in rhymes which is very unique back in the forties because today most poetry does not essentially rhyme, it is the essence of the story that you want to commute

Second Interchange

Clinician - Sometimes it is hard to understand, sometimes you can read a whole poem and not know the meaning

Client - Right

Clinician - You can be completely wrong, I think poetry is beautiful, but I can read through a whole poem and tell you what it means and you can tell me what it means and it would be totally different

Client - Well that's good because we each get different reactions from it and just like when when you look at a tree, you will get a different perspective than from what I do, but each of us will gain something from the experiment

Third Interchange

Clinician - That's true. so do you just write it for your wife

Client - Just for fun of it

Clinician - I don't write poetry at all um a Haiku when I was in high school but that is about it I guess that is something that if you have a lot of spare time you can sit down and do. Right now I don't know that I would

Client - I think that you have to uh

Clinician - You have to enjoy it

Client - You have to be in an environment in which it is conducive to do that sort of thing even not just writing poetry but writing a book uh I mean you have to be maybe sitting out under a tree or along the lake somewhere, you have to have yourself acclimated to the peacefulness of the situation so that your other business thoughts disappear and you allow something fresh and invigorating something energizing get into your mind

Fourth Interchange

Clinician - When I read poetry I have to be outside

Client - Sure

Clinician - When I do write it write it I have to go out in the park or be in a tree or if I read it I won't get anything out of it, I can't do it in the house, it is the same as studying I mean I have to be some where real quite at school to get anything done

Fifth Interchange

Client - Did you take any Lit courses in college

Clinician - My favorite class was World Literature, it was modern World Literature, no mythology, it started with like romanticism and um their to modernism

Client - That include some Chaucer and Shakespeare

Clinician - A little bit we had a little Shakespeare but not a lot

Client - Canterbury Tales

Clinician - No not Canterbury Tales

Client - Oh that's to bad when that (he quotes some poetry)

Sixth Interchange

Clinician - You need to go see Hamlet, it is out now at the movie theater

Client - Right

Clinician - Have you seen that commercial

Client - No

Clinician - It is Hamlet the movie I like to go see it I think once you get a hang of the way they speak then you, At first it is hard for me to read Shakespeare at first all the thous and thees After you read it for awhile you pick up more, I guess poetry was never in the top ten things I wanted to do growing up so

Seventh Interchange

Client - Right

Clinician - It is one of those things I would like to read more when I can

Client - Unfortunately it doesn't provide an especially attractive livelihood either

Clinician - Very individual hobby

Client - Right

Auditory only - Unfamiliar topic - Tennis

First Interchange

Clinician - Tell me why your not interested in tennis?

Client - Perhaps because I really never learned how to play the game uh in my last year in college I was an amateur pro in golfing and um and I really wanted to be as I told you uh a full time student for the rest of my life and play golf the rest of the time but it didn't work out that way so tennis is a hard game, it's a very demanding game uh I think basically uh I think I enjoy something more casually in terms of a sport

Clinician - I like to watch tennis on T.V. That's interesting Sometimes it is kind of boring but interesting if your interested in the game

Second Interchange

Client - You play tennis

Clinician - A little bit, I have been playing paddle tennis lately, Have you seen that?

Client - O.K. (nodding) Well you know we have some courts right over here at Forest Park as I recall

Clinician - Paddle tennis courts or tennis courts

Client - No the uh tennis courts (did not answer my choice question) In fact I am trying to think of the pro the well known pro years ago whose name is the name of it, it escapes me

Clinician - I will have to go over their and play, I am really enjoying this paddle tennis though

Client - If you could get away at lunch time and run over here

Clinician - And go play tennis, I might give it a try sometime

Third Interchange

Client - You would probably beat Doug at it, I don't think he is too good, is he

Clinician - I don't know maybe I 'm not too great at tennis I love tennis though, I love all sports like tennis , It is great exercise, so you don't enjoy watching it on T.V.

Fourth Interchange

Client - It is not one of my favorite sports no, I like to watch skiing through the Alps

Clinician - Oh I love to snow ski , I wish I were their right now, but tennis is interesting um it is a very fast paced game it makes you very motivated

Fifth Interchange

Client - I beg your pardon (leans forward)

Clinician - It makes you very motivated because it is so fast paced

Client - Do you play singles or doubles, which do you prefer?

Clinician - I prefer doubles but sometimes I think I hog the ball I don't let my partner hardly get a chance to hit it, I do that in paddle tennis too, and then when I miss it

Sixth Interchange

Client - I don't understand paddle tennis

Clinician - Paddle tennis is , it's just like tennis but the court is smaller

Client - Same racket?

Clinician - No the racket is in between a ping pong racket and a tennis racket It is bigger than a ping pong but it is made of wood and it has little holes in it

Client - O.K.

Clinician - And then the paddle tennis court is about half the size of a tennis court

Client - O.K.

Clinician - And you can play it off the wall like you do in racketball

Client - O.K

Clinician - There is like fences all around it to hit it off the fence It is a winter sport, because the ball needs to be cold for it to bounce right

Client - Is that a rather new innovation

Clinician - um huh I think so it is They don't have it in Arkansas, We just started playing since I moved here It's fun I mean you can just wear jeans and you don't move around a lot, The key is to play up at the net and you score the same way as tennis but you only get one serve so that makes it a little bit difficult It is really really fun

Client - Yeah uh huh

Clinician - But not very good exercise Paddle tennis isn't you just don't move around enough

Client - So you will have to introduce that back to Little Rock when you

Clinician - I know my dad wants me to take a picture of the court and send it to him because he's in to developing and he said he might develop some paddle tennis courts It is easier than tennis, because the court is so small so I think a lot of people who wouldn't play tennis because they thought it might be too difficult would play paddle tennis

Client - O.K.

Clinician - It is fun you should try it You can do that tomorrow, you can out and play paddle tennis

Client - After I finish writing my poetry

Clinician - Right, exactly

APPENDIX 4

APPENDIX 4

Think a moment on how the client would have made you feel if you had participated in the conversation with him or her, and rate your feelings using the following scale.

For example, if the client made you feel very composed you would put an X under the 1.

	1	2	3	4	5	6	
Composed	<u>X</u>	—	—	—	—	—	Irritated

If the client made you feel mildly irritated you would put an X under the 4.

	1	2	3	4	5	6	
Composed	—	—	—	<u>X</u>	—	—	Irritated

	1	2	3	4	5	6	
Composed	—	—	—	—	—	—	Irritated
Energetic	—	—	—	—	—	—	Tired
Frustrated	—	—	—	—	—	—	Successful
Discontent	—	—	—	—	—	—	Content
Angry	—	—	—	—	—	—	Delighted
Uneasy	—	—	—	—	—	—	Comfortable
Refreshed	—	—	—	—	—	—	Fatigued
Satisfied	—	—	—	—	—	—	Dissatisfied
Pleased	—	—	—	—	—	—	Annoyed
Anxious	—	—	—	—	—	—	Relaxed

Please answer the following questions which pertain to breakdowns and the use of repair strategies in the conversations.

Did the client use repair strategies for clarification? Y N

If, yes what type was used predominantly?

Put an X on the line where it best represents which type of strategy was used.

For example, if the client used all specific strategies put an X under specific.

Specific	Non-specific
X	

If the client used mostly non-specific strategies put an X near non-specific.

Specific	Non-specific
	X

Specific	Non-specific

When specific strategies were used did you feel that they were successful? Y N NA

When non-specific strategies were used did you feel that they were successful? Y N NA

Did the client use appropriate topic changes? Y N

Did the client occupy appropriate share of conversation time? Y N

Was turn taking smooth, with few gaps or interruptions? Y N

Did the client know when to relinquish his or her turn? Y N

The client seemed to be bluffing:

0.....10.....25.....50.....75.....90.....100%
of the conversation.

What behaviors did the client exhibit when you felt that misunderstandings occurred?
Circle the behaviors used and feel free to add in others.

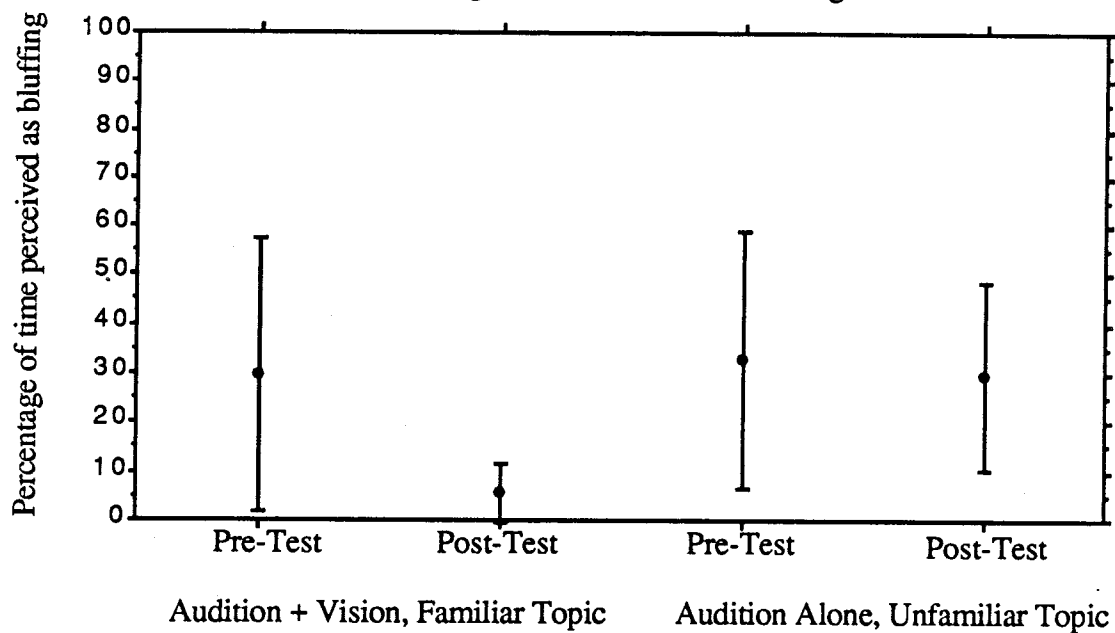
used hands
was fidgety
nodded head
interrupted clinician
ignored clinician
leaned forward
tense posture

The client appeared to understand:

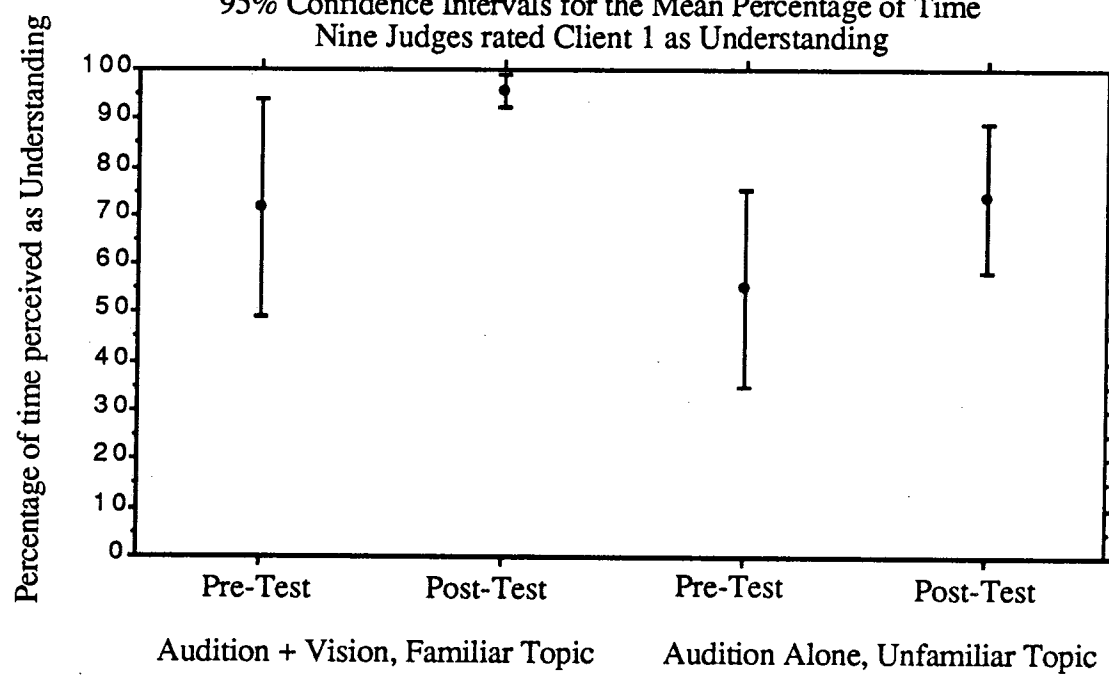
0.....10.....25.....50.....75.....90.....100%
of the conversation.

APPENDIX 5

95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 1 as Bluffing



95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 1 as Understanding



Client 1

X₁: AVFpreBluff

t 95%: 95% Lower: 95% Upper:

28.097	1.347	57.541			
--------	-------	--------	--	--	--

--	--	--	--	--	--

1

X₂: AVFpostBluffing

t 95%: 95% Lower: 95% Upper:

6.245	-.912	11.579			
-------	-------	--------	--	--	--

--	--	--	--	--	--

2

X₃: AVFPreUnderstanding

t 95%: 95% Lower: 95% Upper:

22.525	49.142	94.192			
--------	--------	--------	--	--	--

--	--	--	--	--	--

3

X₄: AVFpostUnderstanding

t 95%: 95% Lower: 95% Upper:

3.062	92.827	98.951			
-------	--------	--------	--	--	--

--	--	--	--	--	--

4

X₅: ANFpreBluff

t 95%: 95% Lower: 95% Upper:

26.391	6.359	59.141			
--------	-------	--------	--	--	--

--	--	--	--	--	--

5

Client 1

X6: ANFPostBluff

t 95%: 95% Lower: 95% Upper:

19.365	10.302	49.031			
--------	--------	--------	--	--	--

6

--	--	--	--	--	--

X7: ANFPreUnderstand

t 95%: 95% Lower: 95% Upper:

20.112	34.888	75.112			
--------	--------	--------	--	--	--

7

--	--	--	--	--	--

X8: ANFPostUNderstand

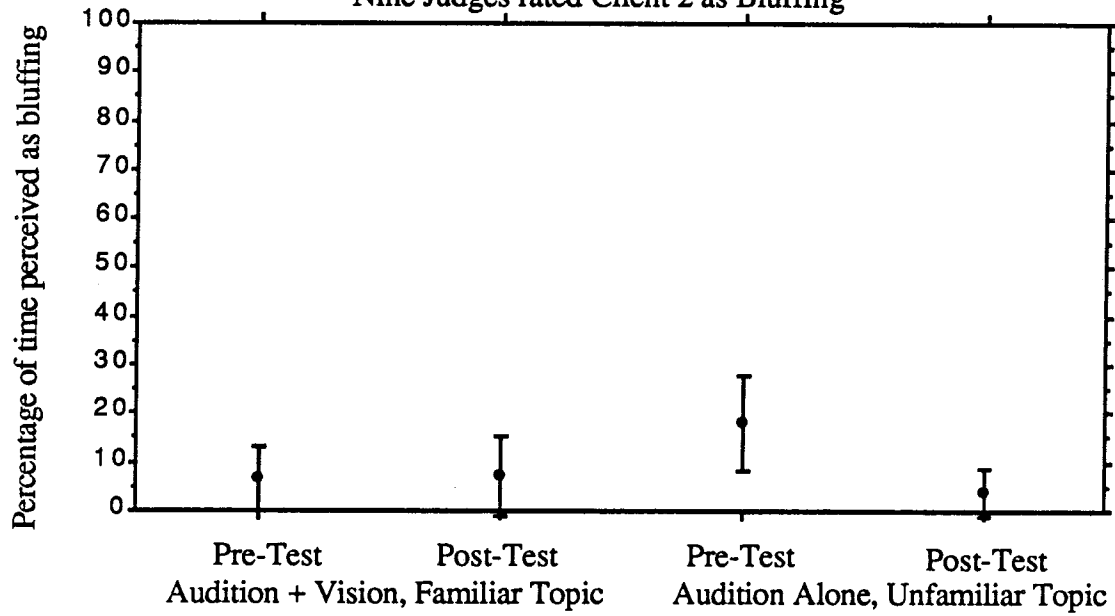
t 95%: 95% Lower: 95% Upper:

15.155	58.734	89.044			
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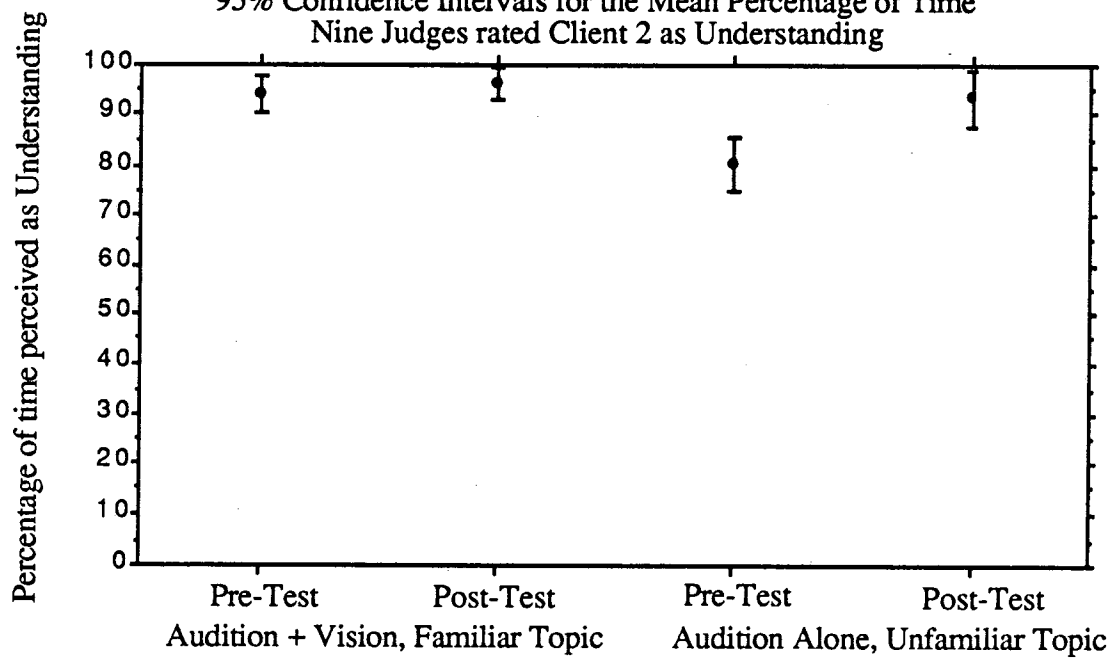
8

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95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 2 as Bluffing



95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 2 as Understanding



Client 2

X ₁ : AVFpreBluff					
t 95%:	95% Lower:	95% Upper:			
6.341	.215	12.896			

1

X ₂ : AVFpostBluffing					
t 95%:	95% Lower:	95% Upper:			
8.118	-.784	15.451			

2

X ₃ : AVFPreUnderstanding					
t 95%:	95% Lower:	95% Upper:			
3.762	90.016	97.54			

3

X ₄ : AVFpostUnderstanding					
t 95%:	95% Lower:	95% Upper:			
3.544	92.456	99.544			

4

X ₅ : ANFpreBluff					
t 95%:	95% Lower:	95% Upper:			
9.64	8.36	27.64			

5

Client 2

X6: ANFPostBluff					
t 95%:	95% Lower:	95% Upper:			
4.801	-.801	8.801			

6

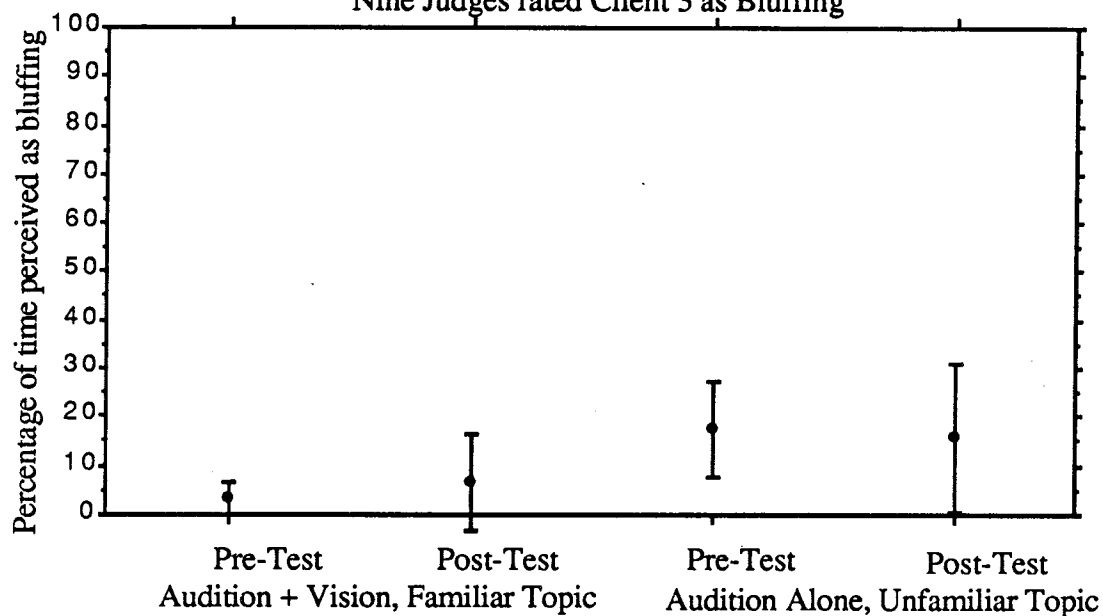
X7: ANFPreUnderstand					
t 95%:	95% Lower:	95% Upper:			
5.585	74.971	86.14			

7

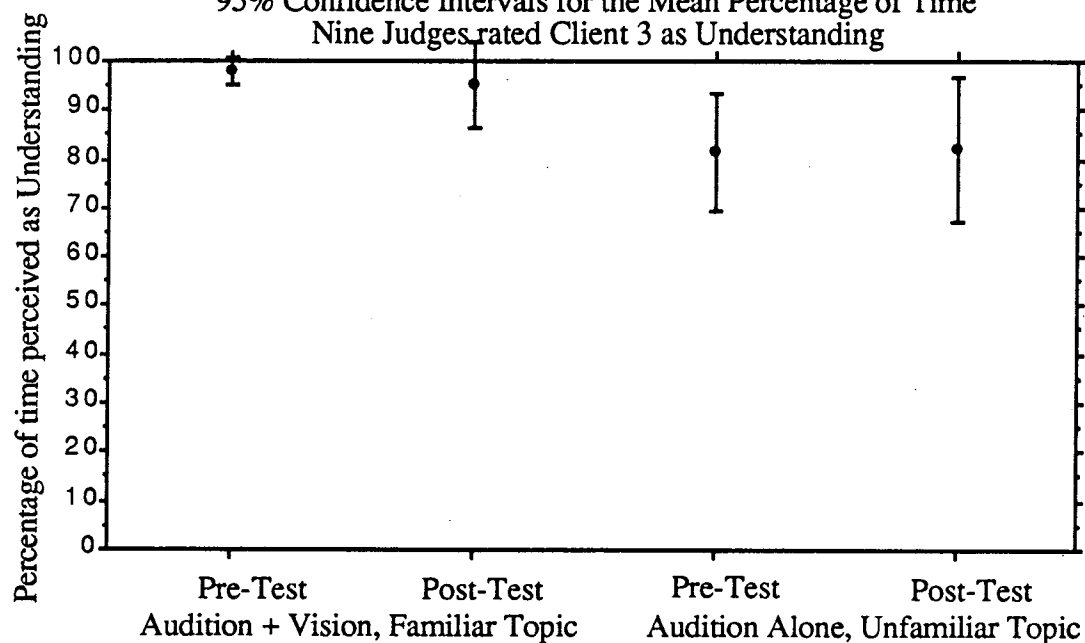
X8: ANFPostUnderstand					
t 95%:	95% Lower:	95% Upper:			
5.567	87.655	98.789			

8

95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 3 as Bluffing



95% Confidence Intervals for the Mean Percentage of Time
Nine Judges rated Client 3 as Understanding



Client 3

X ₁ : AVFpreBluff					
t 95%:	95% Lower:	95% Upper:			
3.523	-.19	6.856			

1

X ₂ : AVFpostBluffing					
t 95%:	95% Lower:	95% Upper:			
10.017	-3.461	16.572			

2

X ₃ : AVFPreUnderstanding					
t 95%:	95% Lower:	95% Upper:			
2.635	95.365	100.635			

3

X ₄ : AVFpostUnderstanding					
t 95%:	95% Lower:	95% Upper:			
8.693	86.196	103.582			

4

X ₅ : ANFpreBluff					
t 95%:	95% Lower:	95% Upper:			
9.763	7.793	27.318			

5

Client 3

X6: ANFPostBluff

t 95%:	95% Lower:	95% Upper:			
15.549	.562	31.661			

6

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X7: ANFPreUnderstand

t 95%:	95% Lower:	95% Upper:			
11.829	69.838	93.495			

7

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X8: ANFPostUNderstand

t 95%:	95% Lower:	95% Upper:			
14.727	67.273	96.727			

8

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APPENDIX 6

APPENDIX 6

Client 1 Auditory/visual familiar topic

Conditions	Pre means- X1	Post means- X2	X1-X2
Composed	3.78	2.56	1.22 +
Energitic	4.44	3.44	1.0 +
Successful	4.11	3.00	1.11 +
Content	3.89	2.78	1.11 +
Delighted	3.78	3.11	.67 +
Comfortable	4.22	2.89	1.33 +
Refreshed	4.78	3.67	1.11 +
Satisfied	4.11	2.78	1.33 +
Pleased	4.00	2.78	1.22 +
Relaxed	4.11	2.89	1.22 +
Sum	41.22	29.90	11.32 +
Mean of sums	4.12	2.99	1.13 +

Client 1 Auditory only unfamiliar topic, auditory/visual familiar topic

Conditions	Auditory only Post means- X1	Auditory/visual Post means- X2	X1-X2
Composed	2.78	2.56	.22 +
Energitic	4.11	3.44	.67 +
Successful	3.56	3.00	.56 +
Content	3.56	2.78	.78 +
Delighted	3.33	3.11	.22 +
Comfortable	3.11	2.89	.22 +
Refreshed	4.22	3.67	.55 +
Satisfied	3.44	2.78	.66 +
Pleased	3.78	2.78	1.0 +
Relaxed	3.33	2.89	.44 +
Sum	35.22	29.90	5.32 +
Mean of sums	3.52	2.99	.53 +

Client 2 Auditory only unfamiliar topic, auditory/visual familiar topic

Conditions	Auditory only Post means- X1	Auditory/visual Post means- X2	X1-X2
Composed	3.22	2.56	.66 +
Energetic	4.56	3.11	1.45 +
Successful	3.56	2.44	1.12 +
Content	3.56	2.33	1.23 +
Delighted	3.44	2.89	.55 +
Comfortable	3.89	2.44	1.45 +
Refreshed	4.11	3.00	1.11 +
Satisfied	3.44	2.56	.88 +
Pleased	3.22	2.44	.78 +
Relaxed	3.78	2.78	1.0 +
Sum	36.78	26.55	10.23 +
Mean of sums	3.68	2.66	1.02 +

Client 3 Auditory/visual familiar topic

Conditions	Pre means- X1	Post means- X2	X1-X2
Composed	2.67	1.89	.78 +
Energetic	3.56	2.33	1.23 +
Successful	3.00	2.00	1.0 +
Content	2.78	1.89	.89 +
Delighted	3.33	2.44	.89 +
Comfortable	3.22	2.00	1.22 +
Refreshed	3.56	2.44	1.12 +
Satisfied	2.89	2.11	.78 +
Pleased	2.89	2.11	.78 +
Relaxed	3.44	2.44	1.0 +
Sum	31.34	21.65	9.69+
Mean of sums	3.13	2.17	.97 +

Client 3 Auditory only unfamiliar topic, auditory/visual familiar topic

Conditions	Auditory only Post means- X1	Auditory/visual Post means- X2	X1-X2
Composed	2.78	1.89	.89 +
Energetic	3.33	2.33	1.0 +
Successful	3.22	2.00	1.22 +
Content	3.11	1.89	1.22 +
Delighted	3.22	2.44	.78 +
Comfortable	2.89	2.00	.89 +
Refreshed	3.33	2.44	.89 +
Satisfied	2.89	2.11	.78 +
Pleased	3.11	2.11	1.0 +
Relaxed	2.89	2.44	.45 +
Sum	30.77	21.65	9.12 +
Mean of sums	3.01	2.17	.91 +

APPENDIX 7

Auditory/visual familiar topic pre and post				APPENDIX 7							AVERAGE
Client 1	JUDGES	1	2	3	4	5	6	7	8	9	
EXTROVERTED PRE	INTROVERTED	1	3	5	4	3	4	2	3	2	3.00
EXTROVERTED POST	INTROVERTED	1	4	5	5	2	5	2	5	2	3.44
PLEASANT PRE	UNPLEASANT	1	2	3	2	3	2	2	2	2	2.11
PLEASANT POST	UNPLEASANT	1	2	2	2	2	4	2	1	2	2.00
ATTRACTIVE PRE	UNATTRACTIV	2	3	3	3	3	2	2	2	3	2.56
ATTRACTIVE POST	UNATTRACTIV	3	3	3	3	3	4	2	2	3	2.89
HIGH ACHIEVER PRE	LOW ACHIEVER	3	3	4	4	2	4	3	4	2	3.22
HIGH ACHIEVER POST	LOW ACHIEVER	3	3	4	4	3	4	3	4	3	3.44
SOCIABLE PRE	UNSOCIABLE	1	2	3	2	2	5	2	3	2	2.44
SOCIABLE POST	UNSOCIABLE	1	2	2	3	2	5	1	2	2	2.22
LEADER PRE	FOLLOWER	1	3	2	5	3	5	3	4	2	3.11
LEADER POST	FOLLOWER	1	3	4	5	3	4	4	5	4	3.67
INTERESTING PRE	BORING	6	3	6	6	5	6	5	3	5	5.00
INTERESTING POST	BORING	4	4	4	5	5	6	3	3	4	4.22
INTELLIGENT PRE	UNINTELLIGEN	1	2	3	3	2	4	3	3	2	2.56
INTELLIGENT POST	UNINTELLIGEN	1	3	2	4	3	4	2	2	3	2.67
FRIENDLY PRE	UNFRIENDLY	1	2	3	3	2	3	2	3	2	2.33
FRIENDLY POST	UNFRIENDLY	1	2	3	3	2	4	2	2	2	2.33
SMART PRE	DUMB	2	2	3	4	2	4	3	2	2	2.67
SMART POST	DUMB	2	3	3	4	3	4	3	2	3	3.00
COOPERATIVE PRE	UNCOOPERATI	1	1	2	2	5	5	3	3	4	2.89
COOPERATIVE POST	UNCOOPERATI	1	2	2	2	1	6	2	2	2	2.22
ASSERTIVE PRE	PASSIVE	1	3	3	5	3	4	4	3	2	3.11
ASSERTIVE POST	PASSIVE	1	3	3	4	3	6	3	5	4	3.56
OUTGOING PRE	SHY	1	3	3	5	3	4	3	5	2	3.22
OUTGOING POST	SHY	1	2	3	5	2	5	2	5	4	3.22
COURTEOUS PRE	DISCOURTEOUS	4	1	3	3	4	5	4	5	3	3.56
COURTEOUS POST	DISCOURTEOUS	2	1	2	2	1	5	2	1	2	2.00

Rating Scale 2

APPENDIX 7

Auditory unfamiliar topic pre and post raw data

Client 1	JUDGES	1	2	3	4	5	6	7	8	9	AVER.
EXTROVERTED PRE	INTROVERTED	1	3	4	4	2	2	2	5	3	2.89
EXTROVERTED POST	INTROVERTED	2	4	5	5	2	4	2	3	3	3.33
PLEASANT PRE	UNPLEASANT	1	2	2	2	2	1	2	2	3	1.89
PLEASANT POST	UNPLEASANT	1	2	3	3	2	3	2	2	2	2.22
ATTRACTIVE PRE	UNATTRACTIVE	2	3	3	3	3	1	2	2	3	2.44
ATTRACTIVE POST	UNATTRACTIVE	2	3	3	3	3	3	2	2	2	2.56
HIGH ACHIEVER PRE	LOW ACHIEVER	3	3	5	4	2	4	2	4	3	3.33
HIGH ACHIEVER POST	LOW ACHIEVER	3	2	5	3	3	5	3	3	3	3.33
SOCIABLE PRE	UNSOCIABLE	1	3	2	2	2	1	2	3	2	2
SOCIABLE POST	UNSOCIABLE	1	3	3	2	3	5	2	2	3	2.67
LEADER PRE	FOLLOWER	4	3	6	5	3	4	4	5	3	4.11
LEADER POST	FOLLOWER	1	3	2	5	4	4	4	4	3	3.33
INTERESTING PRE	BORING	2	4	3	4	3	4	3	2	3	3.11
INTERESTING POST	BORING	5	3	6	6	5	6	3	3	3	4.44
INTELLIGENT PRE	UNINTELLIGENT	2	2	3	3	3	3	2	2	3	2.56
INTELLIGENT POST	UNINTELLIGENT	2	2	3	3	3	5	3	2	2	2.78
FRIENDLY PRE	UNFRIENDLY	1	2	2	2	2	1	1	2	2	1.67
FRIENDLY POST	UNFRIENDLY	1	2	2	3	2	5	1	2	2	2.22
SMART PRE	DUMB	2	3	4	3	3	3	3	2	3	2.89
SMART POST	DUMB	2	2	3	3	2	5	3	2	3	2.78
COOPERATIVE PRE	UNCOOPERATIVE	1	2	2	2	2	2	2	2	4	2.11
COOPERATIVE POST	UNCOOPERATIVE	1	1	3	2	2	4	2	1	3	2.11
ASSERTIVE PRE	PASSIVE	2	2	5	3	4	4	4	3	4	3.44
ASSERTIVE POST	PASSIVE	2	3	3	5	3	5	4	1	4	3.33
OUTGOING PRE	SHY	2	3	4	5	4	3	3	5	4	3.67
OUTGOING POST	SHY	2	3	3	5	3	5	3	3	4	3.44
COURTEOUS PRE	DISCOURTEOUS	1	1	3	2	2	2	2	2	2	1.89
COURTEOUS POST	DISCOURTEOUS	3	1	3	3	2	4	2	1	3	2.44

Auditory/visual familiar topic pre and post

APPENDIX 7

Client 2	JUDGES	1	2	3	4	5	6	7	8	9
EXTROVERTED PRE	INTROVERTED	4	3	3	5	2	4	2	3	2
EXTROVERTED POST	INTROVERTED	5	2	2	4	2	4	2	3	2
PLEASANT PRE	UNPLEASANT	2	1	2	2	1	3	1	1	1
PLEASANT POST	UNPLEASANT	3	1	1	2	1	3	1	1	2
ATTRACTIVE PRE	UNATTRACTIVE	2	2	2	2	2	3	2	2	2
ATTRACTIVE POST	UNATTRACTIVE	2	2	2	2	2	3	2	2	2
HIGH ACHIEVER PRE	LOW ACHIEVER	4	3	3	3	2	3	2	2	2
HIGH ACHIEVER POST	LOW ACHIEVER	4	2	4	3	2	4	2	2	2
SOCIABLE PRE	UNSOCIABLE	3	1	2	2	1	3	2	1	2
SOCIABLE POST	UNSOCIABLE	4	1	2	3	1	4	2	1	2
LEADER PRE	FOLLOWER	4	3	5	5	2	4	2	3	3
LEADER POST	FOLLOWER	5	2	4	5	2	4	2	4	3
INTERESTING PRE	BORING	4	3	2	5	1	4	2	1	3
INTERESTING POST	BORING	6	2	5	3	2	5	2	1	4
INTELLIGENT PRE	UNINTELLIGENT	3	2	2	3	2	3	2	1	2
INTELLIGENT POST	UNINTELLIGENT	2	2	2	2	2	4	2	1	2
FRIENDLY PRE	UNFRIENDLY	3	1	1	2	1	3	1	1	1
FRIENDLY POST	UNFRIENDLY	3	1	2	2	1	3	1	1	2
SMART PRE	DUMB	3	2	3	3	2	3	2	2	2
SMART POST	DUMB	4	2	3	3	2	4	2	1	2
COOPERATIVE PRE	UNCOOPERATIVE	3	1	1	2	2	3	2	1	1
COOPERATIVE POST	UNCOOPERATIVE	2	1	1	2	1	3	2	1	2
ASSERTIVE PRE	PASSIVE	3	2	4	5	3	4	2	4	3
ASSERTIVE POST	PASSIVE	5	3	3	5	2	5	1	3	3
OUTGOING PRE	SHY	4	2	2	5	5	5	2	3	3
OUTGOING POST	SHY	5	2	2	5	2	4	2	3	4
COURTEOUS PRE	DISCOURTEOUS	2	1	1	1	1	3	1	1	1
COURTEOUS POST	DISCOURTEOUS	2	1	3	2	1	2	2	1	2

Auditory unfamiliar topic pre and post

APPENDIX 7

Client 2	JUDGES	1	2	3	4	5	6	7	8	9	AVER.
EXTROVERTED PRE	INTROVERTED	3	2	3	5	3	3	3	4	2	3.11
EXTROVERTED POST	INTROVERTED	4	2	3	5	3	4	3	3	3	3.33
PLEASANT PRE	UNPLEASANT	2	1	2	2	1	2	2	1	1	1.56
PLEASANT POST	UNPLEASANT	3	2	3	2	2	3	2	1	2	2.22
ATTRACTIVE PRE	UNATTRACTIVE	2	2	2	2	3	2	2	2	2	2.11
ATTRACTIVE POST	UNATTRACTIVE	2	2	2	3	2	4	2	2	2	2.33
HIGH ACHIEVER PRE	LOW ACHIEVER	4	2	4	3	3	3	3	2	3	3
HIGH ACHIEVER POST	LOW ACHIEVER	4	3	4	3	3	4	3	2	3	3.22
SOCIABLE PRE	UNSOCIABLE	2	1	2	3	2	1	3	1	2	1.89
SOCIABLE POST	UNSOCIABLE	3	2	4	3	3	4	2	2	3	2.89
LEADER PRE	FOLLOWER	4	3	5	5	3	2	4	4	4	3.78
LEADER POST	FOLLOWER	4	5	5	5	4	3	4	4	3	4.11
INTERESTING PRE	BORING	4	2	2	5	2	2	2	2	3	2.67
INTERESTING POST	BORING	6	3	4	5	3	6	4	1	3	3.89
INTELLIGENT PRE	UNINTELLIGENT	3	2	2	3	2	2	2	1	2	2.11
INTELLIGENT POST	UNINTELLIGENT	3	2	3	3	2	4	3	1	2	2.56
FRIENDLY PRE	UNFRIENDLY	2	1	1	2	2	1	2	1	1	1.44
FRIENDLY POST	UNFRIENDLY	2	1	2	3	2	3	1	1	2	1.89
SMART PRE	DUMB	3	2	2	3	2	2	3	2	2	2.33
SMART POST	DUMB	4	2	3	3	2	4	3	1	3	2.78
COOPERATIVE PRE	UNCOOPERATIVE	2	1	2	1	2	1	2	1	2	1.56
COOPERATIVE POST	UNCOOPERATIVE	2	2	2	2	2	3	2	1	3	2.11
ASSERTIVE PRE	PASSIVE	4	2	3	5	2	1	3	4	3	3
ASSERTIVE POST	PASSIVE	5	4	3	5	2	5	3	3	4	3.78
OUTGOING PRE	SHY	4	2	3	5	3	2	3	4	3	3.22
OUTGOING POST	SHY	5	4	2	6	3	4	3	4	4	3.89
COURTEOUS PRE	DISCOURTEOUS	2	1	2	2	1	1	2	1	2	1.56
COURTEOUS POST	DISCOURTEOUS	2	1	2	2	1	3	2	1	3	1.89

Auditory/visual familiar topic pre and post

APPENDIX 7

AVERAGE

Client 3	JUDGES	1	2	3	4	5	6	7	8	9	
EXTROVERTED PRE	INTROVERTED	1	3	3	3	2	3	2	2	2	2.33
EXTROVERTED POST	INTROVERTED	1	2	3	2	1	2	3	2	1	1.89
PLEASANT PRE	UNPLEASANT	2	2	2	3	2	2	2	3	2	2.22
PLEASANT POST	UNPLEASANT	1	1	2	3	1	1	2	1	1	1.44
ATTRACTIVE PRE	UNATTRACTIV	2	3	3	3	2	3	3	3	3	2.78
ATTRACTIVE POST	UNATTRACTIV	2	3	2	2	2	2	3	3	3	2.44
HIGH ACHIEVER PRE	LOW ACHIEVER	1	2	2	2	1	1	2	2	2	1.67
HIGH ACHIEVER POST	LOW ACHIEVER	1	2	1	1	1	1	3	2	1	1.44
SOCIABLE PRE	UNSOCIABLE	1	2	1	3	1	2	2	2	5	2.11
SOCIABLE POST	UNSOCIABLE	1	2	2	2	1	1	2	1	2	1.56
LEADER PRE	FOLLOWER	1	2	4	3	2	2	2	2	5	2.56
LEADER POST	FOLLOWER	1	2	3	2	1	1	3	1	2	1.78
INTERESTING PRE	BORING	3	3	4	4	2	5	3	2	4	3.33
INTERESTING POST	BORING	1	2	2	2	1	1	3	2	2	1.78
INTELLIGENT PRE	UNINTELLIGEN	1	1	2	2	2	2	2	1	5	2.00
INTELLIGENT POST	UNINTELLIGEN	1	1	2	1	1	1	2	1	2	1.33
FRIENDLY PRE	UNFRIENDLY	1	2	3	3	2	1	2	3	1	2.00
FRIENDLY POST	UNFRIENDLY	1	2	2	3	2	1	2	2	1	1.78
SMART PRE	DUMB	1	1	2	2	1	1	2	2	2	1.56
SMART POST	DUMB	1	1	2	1	1	1	3	2	2	1.56
COOPERATIVE PRE	UNCOOPERATI	1	1	2	2	2	1	2	3	5	2.11
COOPERATIVE POST	UNCOOPERATI	1	1	2	2	2	1	2	1	1	1.44
ASSERTIVE PRE	PASSIVE	1	2	5	3	2	2	2	2	3	2.44
ASSERTIVE POST	PASSIVE	1	2	2	2	1	1	2	1	2	1.56
OUTGOING PRE	SHY	2	2	2	3	2	2	2	2	2	2.11
OUTGOING POST	SHY	1	2	2	2	1	1	3	1	2	1.67
COURTEOUS PRE	DISCOURTEOUS	1	2	2	2	2	2	2	3	2	2.00
COURTEOUS POST	DISCOURTEOUS	1	2	2	2	1	1	3	2	1	1.67

Auditory unfamiliar topic pre and post

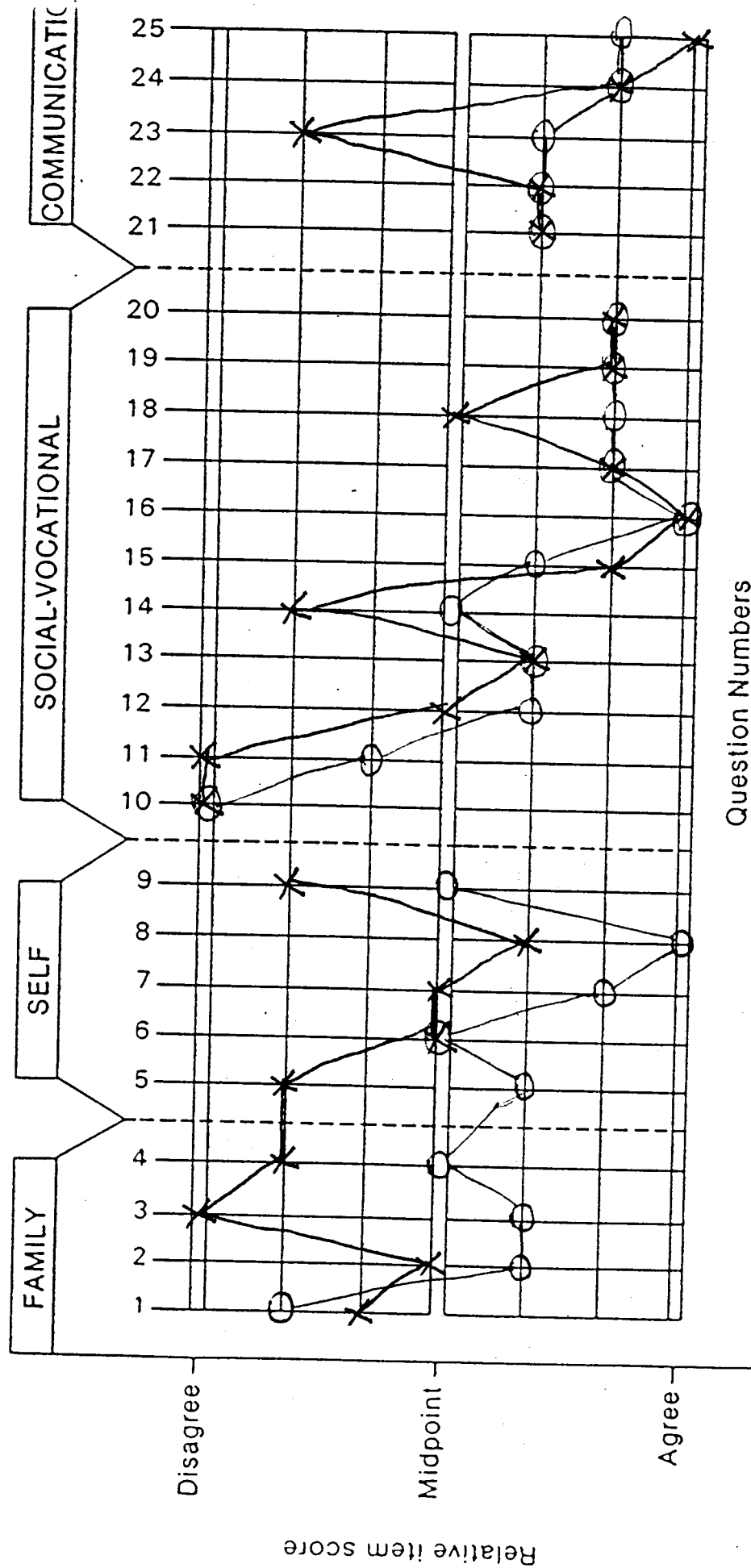
APPENDIX 7

Client 3	JUDGES	1	2	3	4	5	6	7	8	9	AVER.
EXTROVERTED PRE	INTROVERTED	1	2	3	4	1	3	2	3	2	2.33
EXTROVERTED POST	INTROVERTED	2	3	2	2	2	3	2	3	3	2.44
PLEASANT PRE	UNPLEASANT	2	2	2	2	1	1	2	2	2	1.78
PLEASANT POST	UNPLEASANT	1	2	2	3	2	3	2	2	3	2.22
ATTRACTIVE PRE	UNATTRACTIVE	2	3	2	2	2	2	3	2	2	2.22
ATTRACTIVE POST	UNATTRACTIVE	2	2	2	3	2	3	2	3	3	2.44
HIGH ACHIEVER PRE	LOW ACHIEVER	1	1	2	2	2	2	3	3	3	2.11
HIGH ACHIEVER POST	LOW ACHIEVER	1	2	2	2	1	3	2	2	3	2
SOCIABLE PRE	UNSOCIABLE	1	2	2	3	1	2	2	1	2	1.78
SOCIABLE POST	UNSOCIABLE	1	2	2	2	1	3	3	2	4	2.22
LEADER PRE	FOLLOWER	1	1	5	3	2	3	3	2	4	2.67
LEADER POST	FOLLOWER	1	2	2	3	1	4	3	1	3	2.22
INTERESTING PRE	BORING	2	3	4	4	2	5	2	4	3	3.22
INTERESTING POST	BORING	2	3	2	4	1	6	4	2	4	3.11
INTELLIGENT PRE	UNINTELLIGENT	1	1	3	2	2	2	2	1	2	1.78
INTELLIGENT POST	UNINTELLIGENT	1	1	2	2	1	3	2	1	2	1.67
FRIENDLY PRE	UNFRIENDLY	1	1	2	3	2	1	2	2	2	1.78
FRIENDLY POST	UNFRIENDLY	1	1	2	3	2	4	3	2	2	2.22
SMART PRE	DUMB	1	1	3	2	2	2	3	2	2	2
SMART POST	DUMB	1	1	2	2	1	3	3	2	2	1.89
COOPERATIVE PRE	UNCOOPERATIVE	1	1	2	2	1	2	2	2	2	1.67
COOPERATIVE POST	UNCOOPERATIVE	1	2	2	2	2	4	2	2	3	2.22
ASSERTIVE PRE	PASSIVE	2	2	4	4	2	2	2	3	2	2.56
ASSERTIVE POST	PASSIVE	1	2	2	2	1	3	4	1	4	2.22
OUTGOING PRE	SHY	2	2	3	4	2	2	3	3	2	2.56
OUTGOING POST	SHY	2	2	2	2	1	3	3	3	4	2.44
COURTEOUS PRE	DISCOURTEOUS	2	1	2	2	1	1	2	1	2	1.56
COURTEOUS POST	DISCOURTEOUS	1	1	2	2	1	3	2	3	4	2.11

APPENDIX 8

Client # _____ Case # _____ Sex M Age _____

Preservice administration _____ (date) Postservice administration _____ (date)

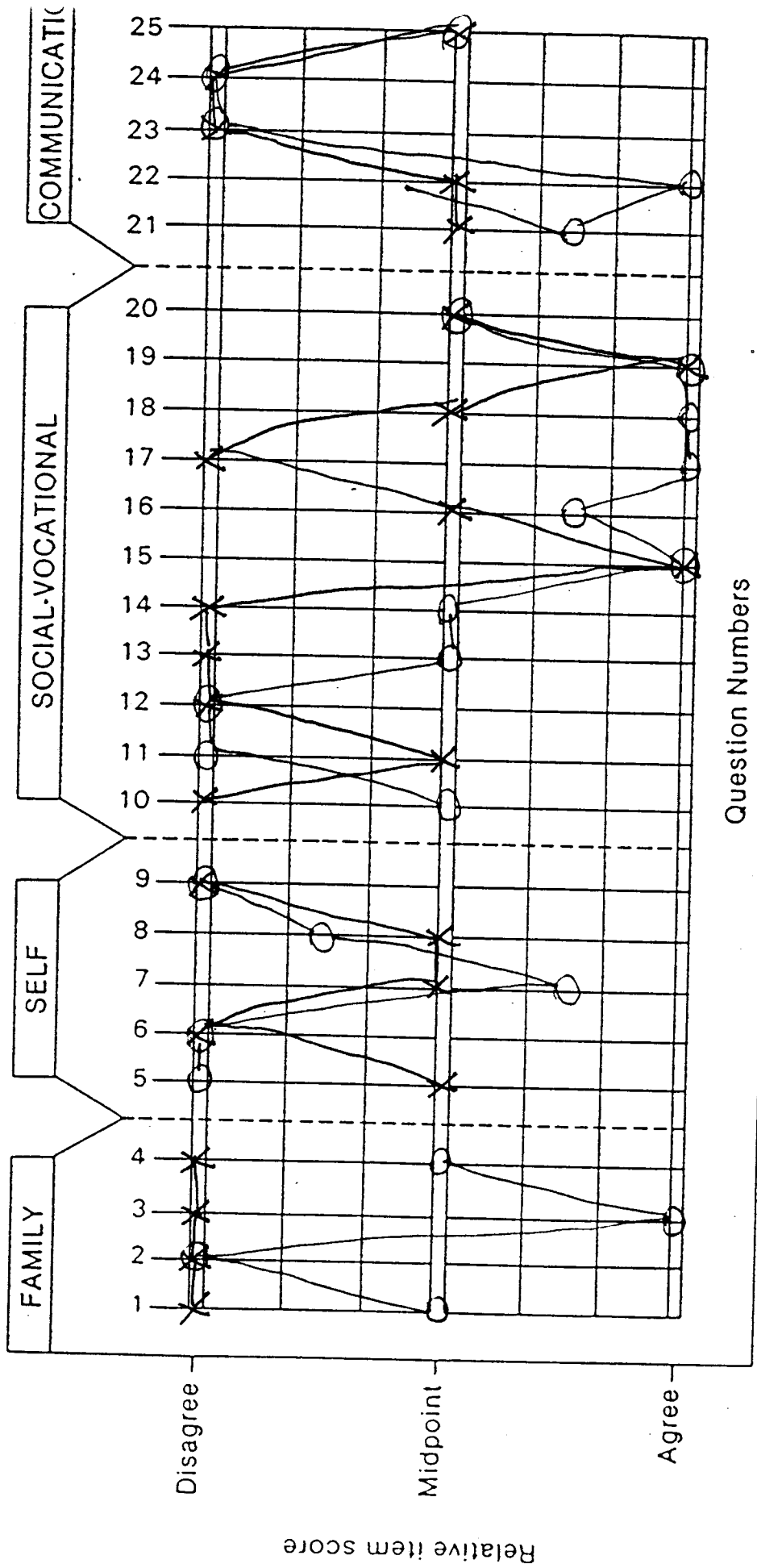


Legend
 Preservice= 0
 Postservice= X

Examiner: _____

Client # 2 Case # _____ Sex F Age _____

Preservice administration _____ (date) Postservice administration _____ (date)



Legend

Preservice = O
Postservice = X

Examiner: _____

Client # 3

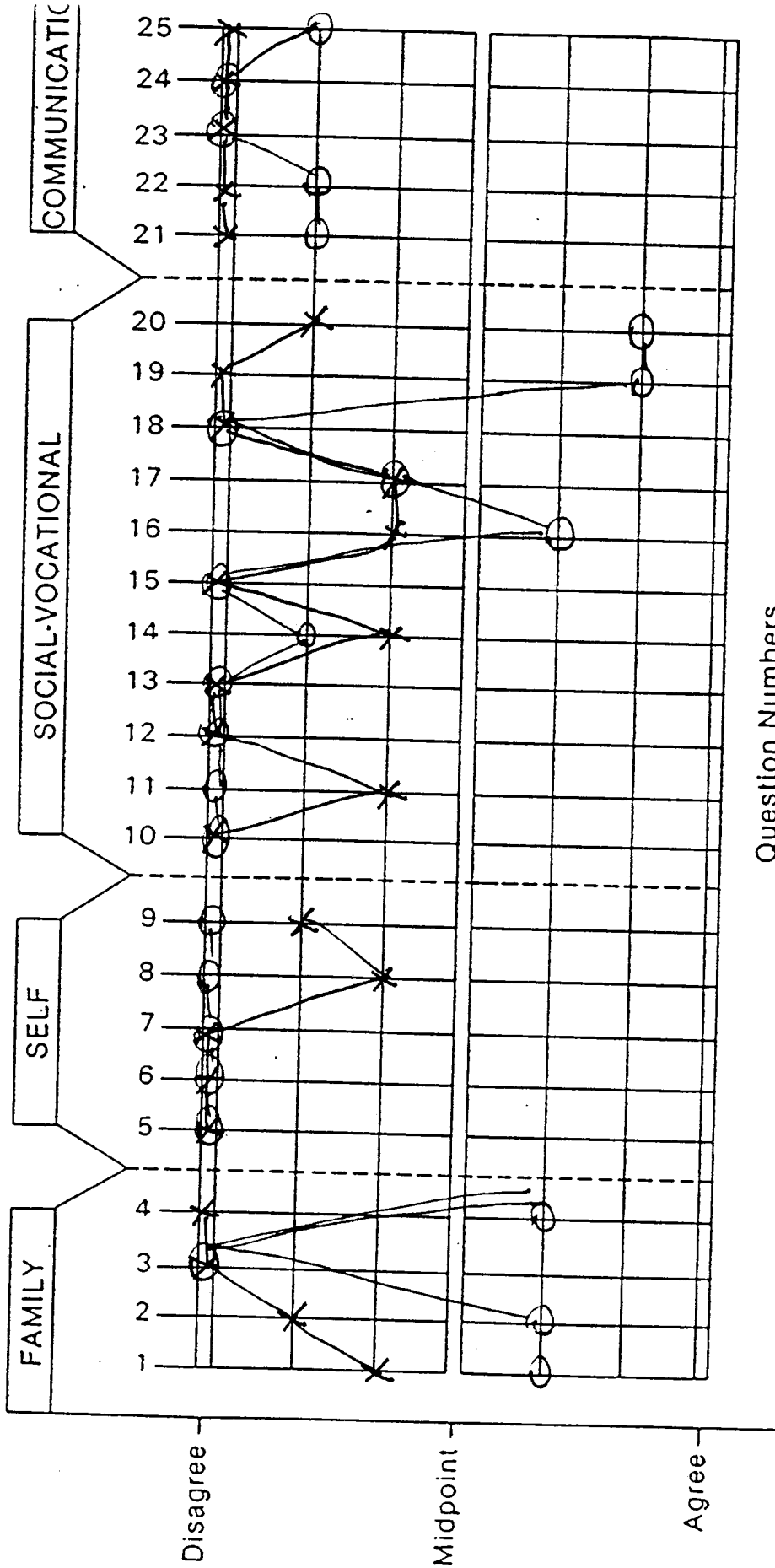
Case #

Sex M

Age

Preservice administration (date)

Postservice administration (date)



Legend

Preservice = 0

Postservice = X

Examiner: